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MILITARY REVIEW

COMMAND AND GENERAL STAFF COLLEGE
FORT LEAVENWORTH, KANSAS

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COMMAND AND GENERAL STAFF COLLEGE

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UDT PAYS OFF

Lieutenant Colonel John E. Robb, *Artillery*
Instructor, Command and General Staff College

In the article which follows, that part of the text in italics has been digested from "Demolition Demons," which appeared in the May 1950 issue of ALL HANDS, the Bureau of Naval Personnel Information Bulletin.—The Editor.

AN ARCTIC wind whipped frothy whitecaps across the surface of the bay and sent rollers crashing against the mile-long strip of sandy beach. Between broken masses of drifting clouds, the moon gleamed dully on the black water. On shore, enemy troops in lookout towers peered through the darkness out over the windswept bay. Except for the scattered patches of floating ice, the sea was empty.

That is, it appeared empty, but 60 feet below the surface of the bay, a United States submarine cruised slowly toward the shore. Its periscope broke the surface and scanned the scene. Slowly, the undersea craft nosed upward and its conning tower emerged. Its engines slowed until it lay almost motionless in the water.

On board, an officer was giving last minute instructions to a group of strangely clad men. He pointed to an aerial photo map. "Okay, you've got all the available dope on this area," he said. "We are now about one-half mile offshore. That strip of beach out there is the only available landing area within 100 miles and it is probably crawling with enemy troops. I don't need to tell you how it would foul up the landing if any of you should be spotted while reconnoitering the area." He paused and grinned. "Just think of all the operation orders the yeomen would have to retype."

Underwater Demolition Swimmer, Bill Rigger, United States Navy, checked his equipment. Over his heavy woolen underwear was a one-piece rubber suit that left only his face exposed. Rubber swim fins were stretched over his feet. Around his waist were fastened a razor-sharp knife, a plexiglass slate, a coiled sounding line, and a pencil. A waterproof compass and watch were clamped on his wrists. Rigger picked up his heavy breathing lung and strapped it on, adjusting the face mask. He followed seven other similarly dressed swimmers through the narrow hatch that led topside.

Crouching on the deck in the whistling wind, each swimmer made a last-minute check of his equipment. Rigger squinted through the darkness at the vague silhouette of the coast, calculating where the section of the beach he was to reconnoiter lay. Quietly he slid off the sub-

The formation of underwater demolition teams, and the gradual development and improvement in operating techniques, is another example of American ingenuity applied to the successful prosecution of a war

marine's deck and beneath the icy water.

The group of powerful swimmers headed silently toward the shore. Using a paced breaststroke, Rigger glided smoothly through the water. Overhead, he could see the foam-flecked surface of the water, dotted with chunks of ice. He glanced at the luminous dial of his wrist compass and veered slightly to the right.

A few minutes later, after calculating the distance he had covered, Rigger dived downward until his hands encountered the bottom. He scooped up a handful of material and rubbed it between his rubber-covered fingers. Small pebbles were identifiable clearly among the gritty sand. Coming to the surface, he unrolled his sounding line and counted the knots as the lead weight sank to the bottom. Treading water, he rolled up the line and scribbled on the plexiglass slate:

ESTIMATED 500 YARDS FROM SHORE. DEPTH 5 FATHOMS, SAND AND GRAVEL BOTTOM.

Moving into shallower water he hugged the bottom to keep from being sucked up by the breakers and flung onto the beach. The undertow tugged at him, making swimming more difficult. His groping hands encountered big rectangular log barriers—"cribs" in UDT language because of their resemblance to a baby crib.

Closer inland, the underwater obstacles became thicker, row after row of barriers cleverly planted to prevent boats from approaching the shore. Guided only by touch and the faint moonlight that occasionally seeped through, Rigger laboriously crept over the bottom. He did not allow his thoughts to dwell upon what would happen if inadvertently he tripped one of the antiboat mines which were imbedded in the sand.

Now that he had stopped swimming, the cold began to creep over him. His underwear, damp with sweat, began to feel icy. Rigger glanced at the glowing hands of his watch. It was almost time to return. Somewhere, out in that black wall of water, lay the submarine, cruising idly while waiting for the swimmers to return. He finished scribbling information on his slate and started working his way to the flank to cover the space between himself and the next man. The rubber suit began to chafe his legs, and even the exertion of swimming no longer warded off the numbing cold. Sucking oxygen through the face mask became more difficult. He surged upward and poked his head above the surface. His eyes strained through the darkness in search of the submarine, a tiny pinpoint projecting from the vast expanse of sea. Nothing was in sight. He plunged back under the inky liquid, stroking ahead. Soon, a vast object loomed ahead. He bumped into the metalic surface of the submarine.

His teeth chattering, Rigger and his buddy clung to the hull of the submarine until all the swimmers returned. The conning tower nosed out of the water and the swimmers hustled down the hatch. The submarine sank below the surface and headed out to its rendezvous.

Back aboard the submarine, after a change of clothes and a hot drink, Rigger joined his comrades for interrogation by the intelligence officer accompanying the mission. From this interrogation and written reports of the swimmers, a master chart of the beach area was prepared showing soundings at various distances offshore, the nature of the bottom, the location and types of obstacles, and exact data on the surf, currents, and other pertinent information. Reproductions of this chart then were delivered into the hands of the amphibious task force planning staffs who determine when, where, and with what means the landing force would strike.

Let us assume a lapse of time while plans are prepared and the landing force is trained, loaded, and moved to the objective area. Let us again join Rigger

and his teammates while they complete the second portion of their job, that of preparing demolitions to clear the landing beach of obstacles.

The team is aboard an APD (a destroyer converted for troop carrying), moving toward the shore line. By now, the area is dotted with ships, units of the preassault bombardment force. The APD moves past the cruisers and battleships that are belching flames as they pound the beach with salvos from their big guns. At 6,000 yards offshore, the APD launches the four LCPRs (landing craft, personnel, ramp) in which the underwater demolition teams (UDTs) will be carried toward shore. Each boat crew lashes a LCR(S) [landing craft, rubber (small)] along its port side. The swimmers again are dressed in their one-piece rubber exposure suits, but this time they do not wear breathing lungs. Only goggles or face masks are necessary for most of their work will be on or near the surface. At Roger hour (the time when swimmers first enter the water), the four LCPRs pass the line of DDs (destroyers) which are pumping shells into the beach, and close to approximately 500 yards. The bombardment ships increase the tempo of their salvos, and the gunboats unleash showers of rockets. The LCPRs turn left and race parallel to the coast line. Overhead, a squadron of dive bombers peels off, and strings of bombs crackle along the shore. The continuous roar of exploding bombs and shells is deafening.

Rigger crouches low in the LCPR, ready to go over the side into the rubber boat and then into the water. As the boats reach the designated spot, the crew throws a heavy pack of explosives, to which flotation bladders are attached, off the stern just as each swimmer goes over the side. As Rigger hits the water, he swims quickly to his floating pack of explosives, attaches his towing line, and strokes for the shore. Like all UDT swimmers, he uses a breast or side stroke to reduce splash and minimize the opportunity for the enemy to line in on him. As he proceeds, he dives from time to time and swims some distance underwater to confuse further any enemy marksmen ashore.

As he approaches the first of the obstacles, Rigger knows exactly what he is supposed to do. Each swimmer has been assigned an area of the beach for which he is responsible. As a result of their previous reconnaissance, the number and type of obstacles in each area are known, as well as how much explosive will be required.

A "frogman" places a demolition charge on an underwater obstacle to clear the beach.

As he begins tying in his charges, other swimmers are unreeling trunk line and cross connections to which the fuzes from individual charges will be attached. Working in perfect co-ordination, the "frogmen" begin "setting up" the beach. As he works, a splattering on the water warns him that he is under fire from somewhere along the beach. He intensi-

fies his bobbing as he works, being careful not to come up in the same place. He glances seaward for a moment and there, spitting fire from their 20- and 40-mm guns, are the gunboats, taking under fire every section of the immediate beach area which shows any sign of activity.

As he connects his last charge, he turns and heads out to sea. Fifty yards apart, the swimmers move in an irregular line toward the pick-up line where they will be "snared" by the racing LCPR. In the towed rubber boat, a husky crewman leans out with the "snare," a flexible cable with a large loop in the end. As the boat approaches, Rigger grasps the cable loop and the momentum of the boat helps to swing him up and around where he is hauled aboard the rubber raft. He clambers quickly over the side into the LCPR as the next swimmer is similarly and unceremoniously hauled in. Meanwhile, back along the line of demolitions, a few men are left to pull the delayed-action fuzes and then race out to where the last boat will pick them up. As they pass beyond the line of gunboats, a solid sheet of water rises 100 feet in the air, and Rigger knows that part of their mission has been accomplished.

The destruction of the beach obstacles does not conclude the mission of these men. After their return to the APD, many of them will be sent to the troop transports to accompany the assault waves as guides and, after the assault is ashore, they will be used by the shore party to finish clearing the remnants of any obstructions still left to ensure uninterrupted continuation of the landing, particularly during the logistical build-up.

Actually, the operation described above never occurred and there is no UDT swimmer by the name of Bill Rigger. However, many similar type operations did take place during World War II, but the existence of these teams and their methods of operations was a carefully guarded secret.

Reasons for UDTs

What causes contributed to the development of this specialized volunteer organization which has an *esprit* second to none, which incurred over-all casualties at Omaha beach of more than 50 percent of the force used, and which never drew a penny of hazardous duty pay during the war?

The early planning for the invasion of "Festung Europa" brought to light the extensive system of obstacles which the Germans were building along the Channel coast. The British also, after Dunkirk, had erected a series of underwater obstacles along their own beaches, which further emphasized the difficulties that would be encountered when the assault was made. What organization did the allied powers have within their forces which was equipped and trained for this type of work? Engineers? Yes, for conventional explosives and demolitions. Naval construction battalions? Yes, for the destruction of obstacles in water and along a shore, but only under conditions where time and facilities allowed deliberate work. There was no organization which could be counted on to undertake such specialized work without extensive training in a heretofore unknown field.

Accordingly, responsibility was assigned to the Navy Department for the clearance of all obstacles up to the high water mark, and to the War Department for their clearance above the high water mark.

Organization and Training

The Chief of Naval Operations, in May 1943, issued a directive for the development of a training school at Camp Perry, Virginia, where naval construction battalions (CBs) were being trained. The initial personnel were recruited from

Above, UDT trainees accustom themselves to the cold weather suits, as they study life-saving and water safety in an indoor pool. Below, pick-ups are accomplished at speeds up to 12 knots an hour by means of a snare. The UDT swimmer in the water hooks it with his arm and is literally flipped into the rubber boat.—Department of Defense photos.

these units because of their basic familiarity with explosives. The first group trained was sent to the Mediterranean Theater of Operations to participate in the Sicilian landings, but, because there were no obstacles of any kind offshore, their work was confined to assisting the Army engineers, and in removing sunken vehicles and craft.

About this same time, the training base was moved to Fort Pierce, Florida, to take advantage of better facilities for this training. Extensive experiments were conducted to develop modifications of commercial explosives for underwater use, for they would be subject to immersion for considerable periods of time.

The initial teams were organized in size to be carried in an LCR(S) which has a capacity of five men, one officer, and several hundred pounds of equipment. This team was found to be too small for practicable use, particularly in reconnaissance, and, as techniques and doctrine were developed, the team was increased to approximately 100 men and officers.

The initial concept visualized, primarily, a demolition mission for these units, but one operation indicated the vital necessity of enlarging their scope to include reconnaissance. Let us turn back the pages of history a few years and see how the lack of such reconnaissance affected a particular operation.

Tarawa

The amphibious assault of Betio Island on Tarawa Atoll, in November 1943, was preceded by the heaviest naval bombardment in the history of the world up o that time. More than 2,500 tons of high explosives poured down on this tiny island over a period of 6 days (equivalent to 20 pounds of metal for each square yard), in addition to two earlier strikes by both carrier based aircraft and heavy ships. The duration and intensity of this bombardment is typified by this quotation from Admiral Hill: "We do not intend to destroy the island, . . . we will obliterate it."

The 2d Marine Division was well trained, well equipped, battle tested, and imbued with the high *esprit* which is characteristic of all Marine units. The first three waves were to be landed over the fringing reef in 125 LVTs (landing vehicle, tracked), new vehicles used here for the first time, which rode low in the water, could cross reefs, and which could deliver their loads of assault troops dryshod on the beach. The operation had been planned and rehearsed carefully, and followed the Central Pacific doctrine of heavy preliminary naval gunfire and air strikes. Yet at H plus 3 hours, most of the assault troops, less the hundreds who had fallen, were still less than 20 yards inland from the gently lapping surf, very little equipment had been landed, and less than a fifth of the LVTs were still operative.

What had happened? The lack of three items of intelligence contributed to this near disaster. One, a strong offshore current existed which had not been discovered during the planning phase; two, the exact depth of water over the fringing reef at all stages of tide had not been determined accurately; and three, the existence and extent of underwater obstacles had not been charted completely.

Let us examine briefly the events leading up to the time when the message was sent out to the Commander, Joint Expeditionary Force, that "the issue is in doubt."

During the disembarkation, Japanese defense guns, not destroyed by the bombardment, opened up on the thin-skinned transports, forcing them to move seaward from their assigned transport areas. As a result, H-hour was delayed, and the finely timed schedule of naval gunfire and air strikes was disrupted partially. Because of flexibility in planning, this was overcome and, just prior to the new H-

Above, UDT members being briefed on a mission, a vital factor in operations of this type, for each swimmer must know the points that he is to check on his swim to shore. Below, a predawn bombardment roars around UDT men waiting for the signal to swim ashore to clear the beaches of underwater obstacles.—Department of Defense photos.

hour, the naval gunfire lifted to allow the assault waves to close the shore without danger from our own fires. However at this time, the first wave was just churning over the reef because of the fact that the long distance they had had to cover against a strong, unsuspected current delayed their scheduled arrival. Instead of being dazed by the last, final mass of fire, the Japanese, in their reinforced pillboxes and bunkers, manned their guns and met these waves with a withering fire from all calibers of weapons. The fourth wave, consisting of LCVPs (landing craft, vehicles, personnel), crashed their bows on the reef and, under intense fire, lowered their ramps, leaving the Marines with some 500 yards of waist-deep, fire-swept water to traverse. The survivors of this and succeeding waves reached the beach exhausted, and joined their comrades behind the relative security of a 6-foot sea wall. Intelligence reports had indicated that the reef could be crossed at high tide, but a combination of circumstances, heightened by the addition of some obstacles, prevented any landing craft from approaching the beach. Tanks were unloaded at the reef and lumbered ashore through the intervening water, but not until D plus 1 were the assault units able to make any substantial gains and then only at terrific cost.

This led to the obvious conclusion that, when surprise was not essential, reconnaissance of beaches, prior to D-day would pay for itself many times over.

Marshall Islands

The first operation in which the underwater demolition teams made a pre-D-day reconnaissance of a hostile beach was prior to the assault on the Marshall Islands, on 31 January 1944. Here, the techniques employed were elementary and no carefully timed system of close fire support was employed, although naval gunfire was used to protect the reconnaissance. No obstacles, natural or man-made, which would hinder the scheduled landing were discovered, and the naval bombardment, which had been greatly intensified as a result of the Tarawa lesson, allowed the teams to work in water close offshore without sustaining any casualties.

Techniques Tested

Lessons learned during this operation and the one which followed shortly afterward at Eniwetok were analyzed and new techniques tried out at the newly established training base on Maui, Territory of Hawaii. The next operation, the following June at Saipan, provided a further testing ground. Three teams were employed from APDs in pre-D-day reconnaissance, but the co-ordination between gunfire support ships and the teams was not well developed, and some casualties were sustained by personnel in the boats. All reconnaissance was carried out under heavy gunfire from the defenders ashore, and it was here that the present means of pick-up or "snaring" was developed. Prior to this time, the LCPR would come alongside a swimmer and stop while he clambered aboard the towed LCR. Because this exposed, unnecessarily, the personnel already in the boat to fire, some quick-thinking individual rigged a life ring to a rope which the swimmer grabbed as the boat cruised by, thus reducing the opportunity for the enemy to take the craft under fire. This system today has been developed to where the boats can operate at full speed and seldom miss a swimmer.

No man-made obstacles were encountered at Saipan, but a passage through the fringing reef was discovered, marked, and subsequently widened to allow the passage by all types of landing craft.

Normandy Invasion

Meanwhile, the teams which had been sent to England, in early 1944, to participate in the Normandy invasion were

having a difficult time. This small group of naval personnel, with a classified and unfamiliar mission, received little recognition. For several months, they were used for various odd jobs and not until the last weeks preceding the invasion were they brought together and given an opportunity to train for the operation. Complete surprise was so all-important that no breach of security could be risked by allowing any pre-D-day reconnaissance.

The plan of landing involved an assault at low tide when the extensive obstacles would be most completely exposed. It was planned to destroy obstacles *during* the initial assault so as to allow the supply and equipment craft and ships free access to the beach on a rising tide. As employed, a mixed group of UDTs and Army engineers (called combat demolition teams) landed at H plus 3 minutes. The hurricane of fire that swept the beaches pinned the assault infantrymen down in and among the obstacles where they sought whatever shelter they could find. As a result, the combat demolition teams had the dual problem of placing their demolition charges under fire and forcing the infantry to move away so that the charges could be detonated. On some areas of the beaches, gaps were accomplished in less than an hour, while on other sections where the fires were heavier, gaps were not opened until D plus 2. These teams suffered staggering casualties. Some teams had as much as 100 percent of their personnel killed or wounded, and the over-all casualty rate for Omaha beach was 52 percent.

The pattern of support and operations, as developed in the Pacific, might well have worked in this situation with the UDTs on the beach an hour or two prior to H-hour when there was still some water over the obstacles to afford protection, and when surprise was no longer a primary factor because of the concentration of shipping offshore. Recall, however, that it was not until Saipan (2 weeks later), that these techniques were developed. Looking back, the wasted 3 months in England could have been used to develop similar techniques by working on the British beach obstacles, had the full capabilities of these units been appreciated.

Some 2 months later, during the landings in Southern France, the UDTs, employed properly, did a magnificent job of eliminating obstacles and escaped without fatal casualties.

Guam

Turning back to the Pacific, where surprise was considered of less importance than the preassault gunfire and bombardment, the next operation scheduled was Guam. On 14 July, two teams made a daylight reconnaissance of some of the beaches selected for the landing. Here, the lessons recently learned at Saipan were employed and, in addition to heavier ships, LCI(G)s (landing craft, infantry, gunboat) were employed in close support of the swimmers, beating down the immediate beach area with overhead fire from their 20- and 40-mm guns. This was the first Pacific operation where extensive man-made obstacles were encountered, and the next 6 days saw 12 more night and day sorties for both reconnaissance and demolition purposes. Only one man was lost and he, aboard an LCPR, by sniper fire. About 620 coral cribs were removed, channels in the reef were located, improved and bouyed, and, on D-day, members of the UDTs accompanied the assault waves as guides. After D-day, their work consisted of improving channels, blasting ramps for LSTs (landing ship, tank), and the clearance of sunken vehicles and craft.

Basic Techniques Firmed

This was the basic pattern to be used throughout the remainder of the war:

Fires from heavy naval ships working

over known or suspected installations, co-ordinated bombing and strafing by carrier or land based planes, and close support by shallow-draft gunboats who could deliver intense direct fire on any sign of the enemy in the immediate beach area.

Swimmers dropping rapidly from speeding small boats, their bobbing heads a difficult target for any snipers ashore who dared to brave the hail of fire from supporting ships.

Carefully timed execution of demolitions.

Rapid pickup of swimmers to reduce, to a minimum, the time they would be exposed to enemy fires.

As a result, pre-D-day reconnaissance and demolition activities became standard practice during the remainder of the Pacific war. Successful operations were conducted at Tinian, where tactical surprise was achieved on a small island by virtue of a night reconnaissance of the beaches which the defender had judged to be too small for use by a force large enough to capture the island.

The beaches at Leyte, Luzon, and Iwo Jima were reconnoitered and, while no obstacles were encountered, much valuable information was obtained and passed on to the expeditionary force commanders in sufficient time for its evaluation and dissemination to all participating parties.

The support by LCI(G)s at Iwo Jima was particularly noteworthy. These small, unarmored craft, firing in support of the swimmers, drew heavy fire from Japanese shore batteries and 12 were seriously damaged or sunk. However, the premature disclosure of these previously unreported batteries enabled our heavier naval ships to locate and destroy them prior to the landing, when they could have wreaked considerably greater damage to the large transports and landing ships loaded with troops. The gunfire support of the UDTs at Iwo Jima was so effective that no casualties were sustained by swimmers even though they were subjected to enemy fire during most of their reconnaissance.

Pre-D-day reconnaissance at Okinawa disclosed some 3,000 obstacles which were destroyed before the landing, and no craft were lost, during the operation, from this cause.

Australian Experience

In May 1945, in the Dutch East Indies, the Australians attempted a similar type reconnaissance and demolition mission with their Army engineers. At Tarakan, veteran combat-experienced engineers attempted to clear the beaches of obstacles and suffered terrific casualties. Their failure, due to a lack of knowledge and training in these specialized techniques, became even more costly when, several hours later, the assault regiments of the 7th Australian Division were forced to jump from their landing craft into shoulder-deep water and clamber over the undestroyed barriers. They paid a high price for the failure to employ underwater demolition teams.

Two months later, United States UDTs 11 and 18, at Balikapapen, on the southeast coast of Borneo, faced an almost identical situation with even heavier enemy opposition. From D minus 6 to D-day, these two teams cleared two beaches—one of 1,800 yards and the other of 2,100 yards—of interlocked log and chain obstacles while under fire and suffered only one casualty, that from a bomb dropped by our own aircraft supporting the operation.

Plans for the Invasion of Japan

None of the operations, prior to this time, had been conducted in cold water, and the normal costume of the swimmers was a pair of swimming trunks plus the equipment needed for the particular job to be accomplished. Plans for the invasion of the Japanese homeland envisaged the necessity for protection from

the cold, and the UDTs were on our West Coast training in the use of exposure suits, in cold water, when the war ended.

Postwar Activities

Since the end of the war, the Navy has not permitted the "know-how" of this valuable and unusual support of amphibious landings to be forgotten. All peacetime maneuvers, such as *Portrex* and *Miki*, have utilized the UDTs, and extensive experimentation has been conducted in all types of hydrographic and geographical conditions ranging from the Arctic to the Antarctic. Currently, several teams are maintained, two on each coast, and constant training is providing a nucleus of swimmers for any eventuality should more be needed.

Underwater demolition team personnel, both officer and enlisted, are all volunteers. There are no special requirements for this duty, as regards height or weight, the principal requirement being that applicants must be in good physical condition.

Each year, approximately 150 volunteers are accepted, of which about 15 percent are screened out immediately for either physical or mental reasons. The remainder start on a 2-month course of the toughest training ever devised.

In UDT training, the most rugged part of it comes first—a nightmarish, grueling, 6-day endurance test aptly called "Hell Week." During this period, the men subsist on K rations.

For the 6 days and nights of "Hell Week," the trainees are subjected to every trial of stamina and nerves their resourceful instructors can devise. Long marches are made through varying terrain, preceded and ended by anywhere from a 1- to 3-mile run. All during each day, explosive charges are detonated, without warning, around them. Early morning swims, each progressively longer,

UDT swimmers passing through a hole they have cut in an underwater submarine net, on their way toward shore to complete a mission.—*Popular Mechanics Magazine* photo.

are made in overcoat weather. As late as early December, trainees take daily swims in the Atlantic wearing only swim trunks. Trainees on the Pacific coast work all year around without exposure suits. By the end of "Hell Week," up to 40 percent of the trainees have been dropped.

By subjecting these men to such training, the instructors are able to determine those who have the mental stability and moral courage to go on when it would appear that the breaking point had been reached. This same system, used in airborne training, ensures that only the men able to meet the required rigorous standards eventually will take their place on the teams, where the failure of one man can jeopardize the safety of the others.

By the end of the training, each man must be able to swim at least 1 mile in a choppy sea without any type of special equipment. He must be familiar with and able to handle any of the explosives used, be able to determine the speed and direction of the current, surf height, the types of surf, the characteristics of a beach, and make an accurate estimate of boat and amphibious vehicle trafficability from the soil below the water as well as by observation of that above the high-water mark. He must be able to dive and swim under water with or without an artificial lung. He must be familiar with common types of underwater obstacles and their point of stress so as to determine the best location for explosives, and he must be able to remember what he observed. At the end of this period of training, about 65 remain out of the original 150 candidates, and graduation is celebrated by a man "earning his swim fins."

The UDT swimmer has much less to fear from the sniper's bullet than he does from mortar shells or heavier explosives. A man's head, bobbing in the surf, is a difficult target for riflemen, but the crushing shock of underwater explosion is not a pleasant experience.

The former inequality which existed as to pay recently has been corrected by listing these men as eligible for hazardous duty pay on the same basis as paratroops. Even without this added inducement, these units had an intense pride in their organization and an *esprit de corps* equal to that of any organization in the three services.

This, then, is the story of the men who fought the war in swimming trunks, who measured depths over fire-swept reefs or towed packs of high explosives to within 50 yards yards of dug-in riflemen and machine gunners so as to blast a path through natural and man-made obstacles for the troops who would have enough to do when they met the enemy on the ground.

Truly UDTs have paid off.

Effects of Civilian Control on the Development of Military Leadership

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The views expressed in this article are the author's and are not necessarily those of the Department of the Army, the Army War College, or the Command and General Staff College.—The Editor.

DURING the course of this article, I shall attempt to point up the relationship between military leadership and civilian control; quickly sketch in the framework which was erected by the founding fathers of our young Republic to accomplish that control; and point out some of its effects during the Civil War and the period of civilian apathy which followed—a period, incidentally, which culminated in a war with Spain. Finally, I will present a few of the great civilian contributions to the development of essential military leadership, and then show how the complexity of modern warfare has precluded either complete civilian or complete military control in our democracy. In the light of the latter, we will examine how the military has measured up to the new challenges—concluding with a brief look into the future.

Democracies traditionally attempt the establishment of safeguards to ensure that the people will not be subjugated to the will of the military. The chronicles of mankind are replete with examples of military domination when such protective devices have proved inadequate, or have been ignored because of man's inherent complacency. Opposition to the creation of a large standing army, particularly during peacetime; the dependence upon citizen militia during times of stress; and the establishment of civilian leadership above that of the military in our hierarchy of national defense are examples which provide tangible and concrete evidence that the fear of excessive military authority has been interwoven throughout the web of our national life.

No man will deny that adequate and effective military leadership is essential for success in war. It should also appear obvious that civilian control over the military, in peace and war, may have certain effects upon the development of that essential wartime leadership. It would be a most fortunate circumstance indeed, if an examination of the lessons from the past, as applied to present-day civilian-military relationships, could reveal a sound pattern for the future. If

Military leadership, in conjunction with enlightened civilian leadership, must exert every effort to justify the weight its influence has upon national affairs so that our democratic way of life may be preserved

this article can brush aside a portion of the mist which obscures the direction along tomorrow's pathway and provide a challenge to seek out a solution with respect to the degree of control that should be exercised within the future civilian-military team, without sacrificing essential leadership, then this effort may be considered successful.

Leadership—Its Meaning

The word *leadership*, although commonly used in our everyday language, has a variety of meanings. Therefore, in setting the stage for our approach to a discussion of the effects of civilian control on the development of military leadership, it is fitting that we pause for a moment to examine the sense in which the term will be used throughout this article.

Many definitions have been propounded and numerous books have been written on the subject, but the theme which perhaps best portrays its meaning is expressed in a few short words from Ordway Tead's book, *The Art of Leadership*: "Leadership is the activity of influencing people to co-operate toward some goal which they come to find desirable."

One point that must be clarified is the distinction between *command* and *leadership*. The ability to dominate or the power of command are the most frequently expressed terms for leadership. However, it should be apparent, particularly during these times, that the act of commanding alone is entirely inadequate as a basis for achieving results from people working together. Certainly one only needs the barest knowledge of human behavior to find confirmation of this point of view. *Command* is the exercise of power *over* people, and primarily is interested in achieving some associated action that is desired by the commander. *Leadership* implies the use and consequent creation a power *with* people. It strives to bring people into effective and harmonious working relationships. Command looks to the result, while leadership is equally concerned about the process by which the result is achieved.

Leadership in our democracy is not easy. The rise of leaders often is discouraged, and those who do arise often are held in distrust by the people. In spite of this, the opportunity which our Republic affords to the person who can demonstrate clearly his right to have influence is without parallel in any other type of society. It is that challenge which faces our top military leadership. Many have been found wanting in the past, both because of their failure to possess the attributes required for high-level leadership and also because of the restraints above which they were unable to rise. However, that fine balance, between civilian control and military leadership essential for war, has been discovered by other military men in our past and, as a consequence, they have risen to brilliant heights. It is to these latter that we must look for guidance in solving the problem of effective military leadership for our democracy.

The Constitution and Civil Authority Over the Military

The supremacy of civil authority over the military stems from the Constitution of the United States and the congressional acts which resulted under the authority of the basic document. The framers of the law of the land, although desirous of providing for the national defense, were equally determined not to open the pathway which leads to an overshadowing and overly arrogant military establishment, or which permits the creation of a military dictatorship. The Constitution makers achieved this objective by so clearly delineating the war and defense powers of Congress, the Chief Executive,

and the civilian agencies of the Government, that adequate civilian safeguards were set up against the possibility of military domination in our country.

The basis underlying our whole system of national defense is the authority of Congress. Without it, there would be no money and no Army, Air Force, or Navy and only an imperfect way of mobilizing the Nation on a sound war footing. These powers vested in Congress—the determination of the military contingencies that might arise to face our Government in time of stress—were based upon political principles which had been well established in England as well as in America. The "sword" may have been placed in the hands of the President as Commander in Chief, but the "purse" was retained in the hands of the legislative branch which was closer to the people.

Thus, the foundations were laid during the formative years of our Republic. Our system, in this democracy, placed the military in a subordinate position to civilian authority. This civilian supremacy could impose its will by appropriations controls as well as through the issuance of direct orders. Oddly enough, this civilian control framework continued relatively unchanged down to the Civil War.

Congressional Experimentation

Concerning the Civil War and civilian control of the military by the Chief Executive, it is sufficient to say that President Lincoln did not find in McClellan, and others before Grant, the type of military leadership he believed essential for carrying on a forceful and aggressive war against the Confederacy. Consequently, the degree of control exercised by the executive branch of our Government reflected this lack of confidence, rather than a desire to engage in political generalship.

The principal difficulty facing the Commander in Chief and his generals was an experiment in civilian control of the military conducted by the "radical" Republicans in Congress. This congressional group was more fiercely opposed to the institution of slavery than any of the other factions in the Republican Party. The "radical" Republicans saw in the outbreak of the war an opportunity to bring about its complete destruction by any means that promised success. Inevitably, this element was bound to clash with President Lincoln and his generals. The important generalships were held by known opponents of the antislavery group, and the "radicals" were convinced that such officers would never consent to the use of the armed forces as an instrument to effect the freedom of the slaves. Initially, this segment of the Republican Party relied upon public protest to force the administration into an antislavery position, but soon they changed their tactics and sought the establishment of some agency under congressional control through which they could dig out Army secrets and help the Party in its formulation of a war policy. The logical congressional device was the establishment of an investigation committee. Such a committee was duly established and, of course, was predominantly radical in make-up. With its first meeting, held on 20 December 1861, there began an important and unprecedented experiment in the relationships between the civil and military authorities of a democracy at war. Senator Benjamin F. Wade, chairman of the committee, envisioned that it was to be more than a mere fact-finding group, and that it would function in such a way that Congress would be assured of a voice in the actual conduct of the war, as well as in the determination of war policies.

It is quite interesting to note that no member of the "Committee on the Con-

duct of the War" had any military experience or background. This fact is even more interesting, however, when one realizes that this lack of knowledge did not prevent the group from investigating military affairs or judging the capabilities of military leaders. Oddly enough, it was not uncommon, during this period in our history, to find that many civilians held in contempt any assertion that military science was a subject of specialized nature and technical in character. It was felt that the average American could master military science in a relatively short period of time. Therefore, convinced that its thinking on military affairs was as good as any of the generals, the committee never hesitated to force its thoughts concerning war strategy and military operations upon the Chief Executive, as well as upon the military leaders.

An examination of this congressional experiment presents a situation which had never happened in any of our other wars. It should raise, in the minds of both civilian and military leaders, the question as to the degree of control that should be exercised by the legislative or any other civilian branch of the government during wartime. With respect to the Civil War, however, one perhaps should look upon it as a reflection of the signs of the times, in which military technique was held in contempt and the amateur in war was favored. Furthermore, the intense feeling running throughout the country over the question of slavery was bound to be linked up with the conduct of the war, and the military leaders, whether they desired it or not, were forced to take sides.

Summing up this analysis portraying the effects of control down through the Civil War, it is evident that there had been no apparent change of sentiment since the beginning of the Republic. After the passage of approximately 75 years, civilian control over the military still reigned supreme.

Post-Civil War Era

In spite of the many evidences of civilian experimentation during the war years, a long period of lethargy settled in directly after the Civil War. The problems incident to reconstruction in the defeated South overshadowed any chance to profit by past mistakes and make over our military system. Financial retrenchment and reconstruction were of such importance on the stage of national politics that other national problems were forgotten.

Consequently, a succession of drastic personnel reductions occurred between the years 1869 and 1878. Budgetary reductions occurred with such regularity, during this period, that, in 1878, the Army found itself with no funds to pay its officers and, for a time, they were literally compelled to "give" their services to their country. Needless to say, this revision downward had its detrimental effect upon the development of effective military leadership. Those military men who possessed leadership qualities were scattered to the four winds. They found themselves ordered to small, isolated posts where their talents were allowed to stagnate. Their mental processes were engaged in working out the narrow problems of a local nature, rather than directed toward the solution of questions of broad, national proportions.

Civilian control, or lack of it, did impose a definite and serious deterrent to the development of effective military leadership during this period in our history. This, then, was the stage setting for our war with Spain. Concerning the war itself, very little need be said here. Spanish land and naval forces were defeated easily, and the whole show had

more of a semblance to an excursion and picnic than to a war between two world powers. Apparently, the only discordant notes in the otherwise happy symphony seemed to be the tremendous death toll from preventable diseases, and the scandals of gross mismanagement in the armed forces.

Far Reaching Changes

As a result of the lessons learned from our war with Spain, it appeared evident that far reaching changes were inevitable. The ground work had, at last, been laid; lethargy and apathy no longer reigned supreme; and coequal civilian-military teamwork now was in its nascent stage. It only remains, therefore, to examine how this marrying of civilian-military responsibility and authority has developed, and to determine whether it was capable of producing the type of effective military leadership so essential for our national security.

With respect to the civilian contributions to the development of essential military leadership, one could devote this entire article to an examination, in some detail, of the outstanding leadership provided in this field by such men as Elihu Root, Henry L. Stimson, and Newton D. Baker. However, in view of editorial limitations, I will draw on only one, the late Secretary of War Stimson, who recognized the necessity for the development of the highest type of military leadership and the means by which it may be best attained when he wrote in *On Active Service in Peace and War*:

> In the making of a citizen army, the central issue is leadership, of such leadership war is the final test. But this leadership must be military; the confidence of the Army and the country must be confidence in soldiers. If the generals are successful, they will receive the credit they deserve, and they will receive in addition an uncritical emotional support that has no counterpart in peacetime democratic life. If they fail or seem to fail, they will be quickly forgotten, but the fear their failure makes will spread to the whole military establishment. The pearl of highest price for a democracy at war is well-placed confidence in its military leadership. It thus becomes the duty of the Secretary of War to support, protect, and defend his generals. Those who fail must be quickly removed; those who succeed must be publicly acclaimed; those who come under attack, even when the attack is justified, must, if they are skillful fighting officers, be sustained and encouraged—for the first-rate field commander cannot be replaced by formal requisition. A rule which is sound for all administration everywhere thus becomes vital in an army at war. You discipline and reprimand in private; you praise and promote in public; and *you back your subordinates*. The function of the civilian Secretary is dual: as a responsible public official, it is his duty to insure that the Army serves the broad public interest; as the Army's chief, it is his duty to act as the defender of the Army against its enemies and detractors.

Under just such civilian control as Mr. Stimson has envisaged here, there can be little doubt that effective military leader-

HENRY L. STIMSON
Secretary of War 1911-13 and 1940-45

ship, so essential in wartime, will be nurtured properly and assured an unrestrained development.

Modern Warfare and Civil-Military Control

Now let us examine for a moment the complexity of modern warfare and its effect upon civil-military control. The time when warfare, except in cases of actual invasion, is of no particular concern to the people as a whole is gone forever. No

longer can taxes, levied for the prosecution of a war, be considered indirect. No longer are war supplies purchased on an open market. No longer are sacrifices and high morale demanded of the military alone. The tremendous scale of present-day mechanized warfare involves civilian participation almost, if not equally, as much as military effort. Without question, in addition to military operations, strategy now must include and take cognizance of diplomatic maneuvers, propaganda, the protection of the home front, the maintenance of morale, the speeding up of production, the strengthening of the nation's financial sinews, the control of prices, the rationing of food, and a myriad of other complexities. Thus, contrary to the wars of the past which were the concern, primarily, of the generals and admirals, the problems involved in directing the total effort of a nation at war have, at last, become too vast to be handled effectively by one group of leaders alone. It has become a responsibility of all the people and their government. A greater proportion of the American people was drawn into World War II than in any previous war, and, as a result, Americans have developed a far greater disposition, than at any previous time, to trust professional military opinion. It is quite clear that as armies increase in size and as military experience is extended to an ever increasing proportion of the population, the military mind is more likely to become characteristic of the national mind.

Confidence in the Military

One need only examine the impact of two world wars upon the mobilization of our national resources to realize the extent to which the complexities of total war have precluded complete civilian control. In both of these world wars, the necessity for centralized direction of our national economy was apparent to even the poorest informed citizen. The controls that had to be applied became so extensive that even the day-to-day life of the American people was affected to a large extent. The military departments recognized that the civilian agencies of the Government, acting under the President, should exercise controls over our economy. However, control over the end items of military matériel, directly related to strategic logistical planning, could not be divorced from the purview of the armed services. The complexities induced by this interrelationship require the highest order of civilian-military co-operation and coordination in meeting squarely the intricate problems of modern warfare.

Confidence of the people in the purely military attributes of armed services leadership has been neither unmerited nor misplaced. Pershing, Marshall, MacArthur, Nimitz, King, Eisenhower, and many others have measured up to the popular concept of what outstanding military leadership represents. Even more important, however, Americans have seen many of their military heroes go far afield and distinguish themselves in pursuits normally reserved to civilian authorities. The realization that such endeavors were possible, without undermining our democratic way of life, undoubtedly has had a very definite affect in allaying earlier fears concerning the military. For example, General George C. Marshall is the very epitome of that trust and confidence the American people have given to unselfish military leadership. His leadership takes its authority from his great strength of character, and is worthy of emulation by all military men who aspire to leadership in our democracy.

Responsibilities of Military Leaders

The evolutionary process which has brought about a lessening of the popular

fear of the military, and a resulting acceptance of the leadership of military men in all fields of government, imposes definite responsibilities upon our military leaders as they face the many challenges of the future.

The past decade has demonstrated clearly that training and experience in other than professional military pursuits is an absolute requisite for the modern military leader. With the reopening of the Army War College, in September 1950, after a long period of inactivity, each of the three services now has its own means for providing high command and staff leadership training. By attendance at these and the other service colleges, selected key officers of the Army, Navy, and Air Force may acquire the breadth of vision and knowledge necessary for meeting and solving the problems incident to the formulation of national policy. The very existence of all these colleges affords additional evidence that the military not only recognizes the implications of the new challenges but demonstrates its readiness to meet its responsibilities on the national security team alongside of its civilian partners.

History has taught us that neither the Constitution nor Congress can prevent the increase of professional military influence, provided the President, supported by public opinion, considers such influence necessary and expedient. The degree to which that influence may be effected, of course, will be determined by the magnitude of our military establishment, the immediate threat to our security, as well as by the character of our military educational system. Congress legally is capable of exercising control over both the size of our armed forces and the caliber of our military education. However, with world conditions as they are today, wherein our national existence is threatened, it is unlikely that the national legislative authorities will take steps to reduce the efficiency of the armed services, or their capacity to maintain America's position in the balance of power. Military leadership, in conjunction with enlightened civilian leadership, must, therefore, exert every effort to justify the weight its influence has upon national affairs in order that our democratic way of life may be preserved.

Policy Making and the Military

Today, there appears to be an unquestioned acceptance of the fact that the military must participate in the field of policy making. The only questions appear to be the degree of participation and the manner of such engagement in policy making. In view of present world conditions, there is little doubt that national security is the most important factor in our foreign policy, and, because of these conditions, the right of the military to participate in this field is rather generally accepted. Although recognizing that the economic and political health of the United States is the very foundation on which our security must be built, in the past there has been relatively little participation of the military in the formulation of internal policies except through their influence on mobilization measures. If, in the future, the military leader is to pull his oar in concert with his civilian teammate, it is essential that he become cognizant of and accept responsibilities in all the areas affecting our national security. It is inevitable, therefore, that this must entail a knowledge and appraisal of the impact of national security upon other areas of national policy. This, then, is one of the challenges of the future for military leadership to face.

Our military posture must not be maintained by excluding or subordinating the civilian in allied professions. The so-

lution appears to lie in the creation of a true professional partnership. Rather than dominating or absorbing the outstanding civilians in other fields, the military must take the lead by working for the establishment of a system which will provide for collaborative effort with the country's best minds. Domination leads only to mediocrity, while collaboration leads to intelligent and competent solutions.

It would be presumptuous, indeed, to assume that our job in the future will not require redoubled collaborative efforts on the part of the civilian-military team. This, then, is another of the challenges our military leaders face as they look into the future.

We Americans, civilian and military alike, always must be prepared to justify our way of life, both to ourselves and to others. Our democratic system still affords opportunities far beyond those that can be found under the totalitarian regimes. We enjoy the right and privileges of the secret ballot. We all possess the right to participate in government. Certainly, our freedom of action in both thought and expression is worth fighting for. Hanson W. Baldwin pointed out a possible danger of tomorrow, when he said: "Perhaps history will record that reasonable national security, based on the development of an offensive military force, was impossible without the development of American Imperialism." I hope not; I believe not; but if the choice must come, I certainly prefer a world dominated by an American form of imperialism to one dominated by Soviet imperialism. It seems to me that the difficulties involved in setting up safeguards against the establishment of an American form of imperialism while, simultaneously, we provide for the defense of our democracy represent challenges which will try the very mettle of our civilian-military leadership team in the days that lie ahead.

Challenges of the Future

In the final analysis, our leaders, both military and civilian, must continue to strive for national security without militarization; international co-operation without weakness; and a world law maintained by an efficient world organization supported by public opinion. Along such a pathway lies the continued development of civil-military co-operative teamwork and leadership, a trend which already is at work in our country today. We, in the military, must accept these new opportunities and responsibilities. Our leadership, through training and experience in broader fields than military tactics and techniques, always must be ready to meet these larger responsibilities. Such, then, are the challenges for the future.

A perusal of available military and civilian publications, during the past 3 months, indicates that material from the MILITARY REVIEW was reprinted in the following countries:

Argentina	**Denmark**	**Italy**	**Switzerland**
Australia	**France**	**Norway**	**The Netherlands**
Belgium	**Great Britain**	**Paraguay**	**United States**
Canada	**India**	**Peru**	**Uruguay**
Chile	**Ireland**	**Portugal**	

The Editor

Counterattack

The Decisive Element of Defensive Operations

Lieutenant Colonel William H. Hale, *Armor*
Instructor, Command and General Staff College

THE nine principles of war, on which the military doctrine of the United States Army is based, emphasize the offensive nature of our tactical concepts. By assuming the offensive we gain the initiative, which, in turn, permits the selection of objectives, the place, the time, and the means for accomplishing the mission. Only by offensive action can a decision be gained. It is through offensive action that the commander imposes his will on the enemy. Defensive operations are resorted to only to economize on our forces in order that we may assume the offensive, under more favorable conditions, at a later place or time. The counterattack is the expression of this offensive concept during defensive operations. It is the decisive element of the defense.

Counterattack Planning

Our doctrine contemplates vigorous and aggressive counterattacks by reserves in event of an enemy penetration of our defensive positions. The counterattack will be employed by all echelons when the situation permits. However, a careful analysis of the situation must be made by the commander of a unit on the defense before he reaches a decision to commit his reserves in the counterattack. Indiscriminate commitment of local reserves may result in a loss of depth in the battle position. Such local counterattacks should be based upon how essential the terrain seized by the enemy is to the conduct of the defense in question, and the relative combat strength of the enemy and our own forces.

Counterattack plans must be made to meet any possible enemy penetration. Each plan must contain an objective, attack position, line of departure, and direction of attack as illustrated schematically in Figure 2. In addition, each plan must specify the unit to conduct the counterattack, as well as any unit which will occupy a previously prepared defensive position to be employed in conjunction with the counterattack.

The counterattack plans must provide the flexibility required to permit the counterattacking force to strike the enemy when the momentum of his attack has been slowed to the point where the counterattack has a reasonable chance of success. The decision as to when to

A defensive position is only as strong as the offensive spirit of the unit defending it. A vigorous, carefully prepared counterattack, the expression of this offensive spirit, is the decisive element of the defense

launch the counterattack is one of the most difficult to be made by a force commander. It cannot be made without evaluating carefully the power and rate of the enemy advance both along the shoulders and on the nose of the penetration, and without considering the weight of the enemy reserves which are available for employment in the zone of the penetration.

Responsibility of the Sector Commander

The counterattack essentially is an attack to seize a limited objective. As such, plans for a counterattack should provide all the elements which are necessary to carry out limited offensive operations. Variations in the expression of these elements will, of necessity, be determined at the echelon at which the counterattack is planned. However, the defensive sector commander at all echelons usually will prescribe:

1. Objectives.
2. Zones of action.
3. Direction of the attack.
4. Forces involved.
5. Command relationships.
6. Provisions for fire support.
7. Priority of preparation of the counterattack plans.
8. Other details essential to co-ordination during the conduct of the limited offensive.

Types of Counterattacks

In considering the application of the elements mentioned above, the commander of the defensive sector must determine the type of counterattack most appropriate in light of the terrain in the area of operations, his own situation, and the anticipated enemy actions. Fundamentally, for planning purposes counterattacks fall into two general categories. The first of these, and the most frequently employed, is the counterattack which is launched to restore the original position. Plans for this type of counterattack should be prepared in anticipation of a successful enemy penetration of the battle position, and normally will be aimed at regaining critical terrain which has been lost to the enemy attack. It is particularly applicable during the conduct of a position type defense, where mutual support between the organized defensive areas within the battle position is essential to the retention of the position itself, and the organized defensive areas must be held to ensure this mutual support.

The second type of counterattack to be considered is that which is launched to trap and destroy an enemy force which has succeeded in penetrating between organized defensive areas. This type of counterattack should be considered especially when the defending force, because of the width of the sector defended, is unable to organize mutually supporting defensive areas within the battle position itself. Here, in contrast to the priority which is given to the location of defensive areas in a position type defense, maneuver space for the counterattacking force is a primary consideration in the successful conduct of a mobile type defense. The closely knit organization of a position type defense will all but preclude large-scale counterattacks in which maneuver space for the counterattacking force is a major consideration. However, the depth of the defensive sector, the multiple reserves, and the organization for all-round defense of the critical terrain within the sector, provided in a mobile type defense, favor the execution of a counterattack of the second type where maneuver space for the force making the counterattack is the major factor which will determine the success of the operation.

Responsibility of the Counterattack Force Commander

The designated commander of the counterattacking force will receive the directive of the sector commander. He will make those recommendations, based on the plans of the sector commander, as to modifications in the directive which he feels are necessary in light of the forces to be involved. The situation might indicate the desirability of submission, by the counterattacking force commander, of counterattack plans in addition to those received from the sector commander. However, whether or not the commander of the counterattacking force recommends modifications in the plans received, or recommends additional plans, he will, in all cases, complete the planning in detail for conduct of the counterattack. On the completion of the planning, the force commander will submit the counterattack plans to the sector commander for final approval. The order for the execution of the counterattack will be given by the sector commander. Normally, the order for a counterattack will not be issued without notifying the next higher headquarters. It should be obvious, therefore, that the responsibilities of both the force and the sector commander are similar to the responsibilities of their counterparts in normal offensive operations. It is the conduct of the counterattack, and the command relationships in the zone of the counterattack, that distinguish this type of attack from a normal attack operation.

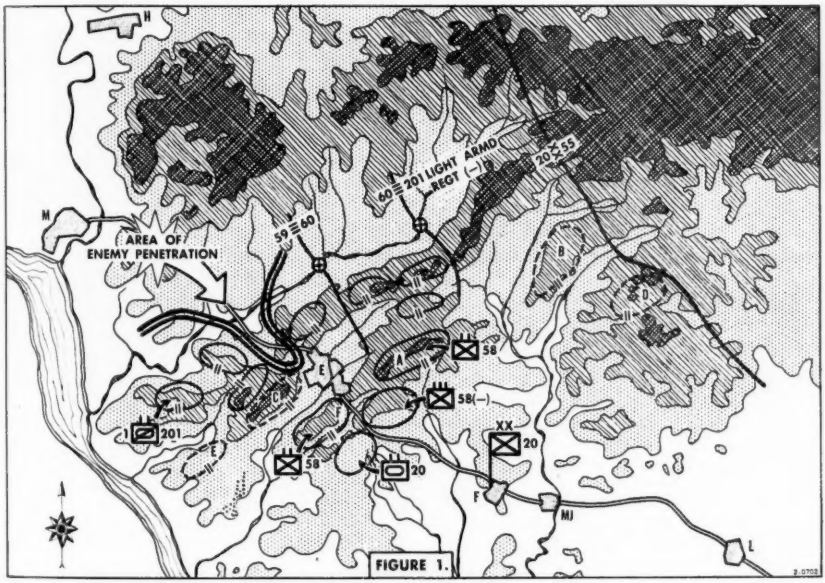


FIGURE 1.

Command Relationships in the Area of the Counterattack

In all types of counterattacks, plans must provide for a unity of effort among the forces containing the penetration and the forces making the counterattack. Unity of effort among the counterattacking

forces and those containing the enemy penetration may be achieved by:

1. Detailed prior planning.
2. Rehearsals by key personnel.
3. Designation of boundaries or frontages to fix responsibilities.
4. Avoidance of friendly defense areas.
5. Provisions for the unity of command in the same zone of action.

The command organization for the counterattack must provide for unity of command. This usually is achieved by placing all elements of the counterattack under the command of a single counterattack commander. Unity of command throughout the zone of counterattack may be accomplished either by the attachment of elements of the containing force to the counterattacking force, or by a passage of lines. Reserves are reconstituted from other units which the plan for the counterattack makes available.

Three Examples

Three general situations may be used to illustrate the problems in achieving unity of command during the execution of a counterattack. In the first two of these situations, the 20th Infantry Division, reinforced with the 201st Light Armored Regiment, is defending with a position type defense. In the third situation, the 20th Infantry Division, reinforced with the 751st Tank Battalion, is defending on a wide front.

Situation 1.—(See Figure 1.) Assume a penetration which has not succeeded in seizing a critical defense area, but has succeeded in rupturing the main line of resistance. Here, there are three possible solutions for achieving unity of command. The sector commander could:

1. Withhold the counterattack and attempt to destroy the enemy penetration by fire.
2. Counterattack with local reserves.
3. Counterattack with a portion of the division reserve; for example, an infantry battalion reinforced or a task force of an infantry battalion and the

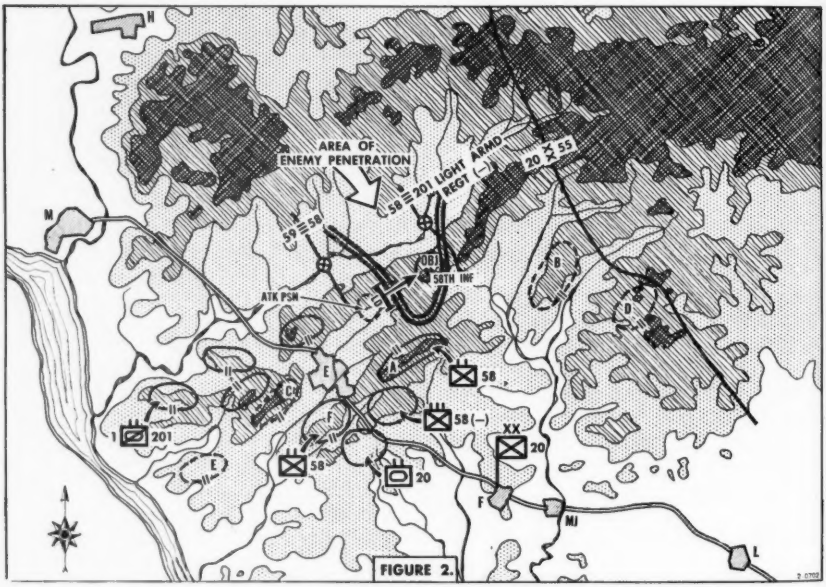
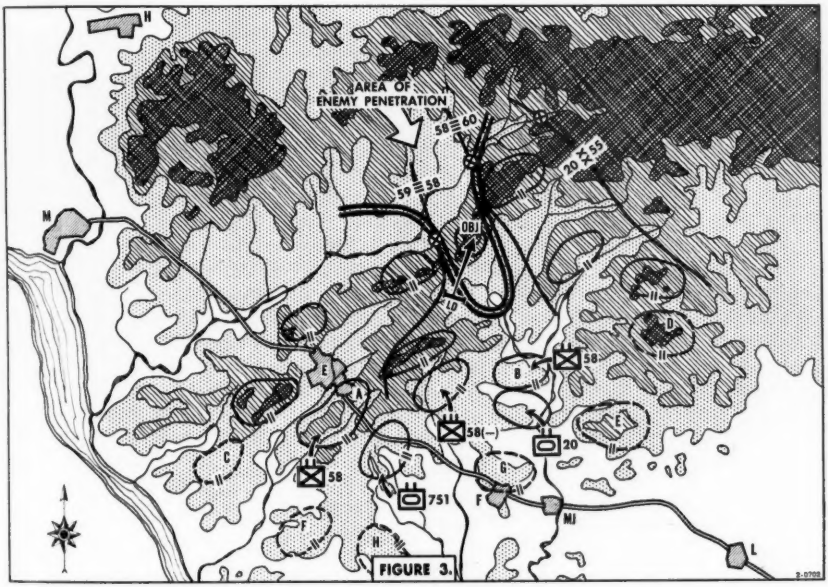


FIGURE 2.

division tank battalion. The 59th Infantry Regiment will continue the defense of its sector. The counterattacking force is attached to the regiment until the battle position is restored, at which time the counterattacking force may revert to division reserve, or units thereof may remain attached to the regiment for the defense of the regimental sector.



The final decision of the sector commander, in this situation, will be based principally on his evaluation as to whether this is the main effort of the enemy.

Situation 2.—(See Figure 2.) Assume a major enemy penetration has seized a critical defense area. It cannot be destroyed by fire or ejected by an attack of the regimental reserves. Considerable portions of the regiment defending the sector are disorganized and are in need of reorganization.

In this case, the entire division reserve might be committed to the counterattack, with the counterattack force commander assigned the responsibility for defense of the sector in which the counterattack is launched. The disorganized regiment in the sector of the enemy attack will revert to division reserve less:

1. Intact units, adjacent to the penetration area, capable of furnishing fire support to the counterattack. These units should be attached to the counterattacking force.

2. Elements of units which have been partially overrun or otherwise disorganized, but which are still in contact with the enemy. These elements should maintain their positions until passed through, or until their fires are masked, or until they are released by the sector commander (counterattack commander). Then and only then should they revert to division reserve. Whether they are attached formally to the counterattacking force is immaterial, as the order for the counter-

attack will specify that they will be under command of the counterattacking force commander.

Situation 3.—(See Figure 3.) Assume a major penetration in a sector of a division defending on a wide front. This assumed penetration is in an area between strongly held defense areas.

In this case, the original regiments continue the defense of their sectors (59th and 60th Infantry Regiments). The entire division reserve will be committed to the counterattack, and boundaries will be redrawn to define the responsibility of the counterattacking force and the regiments defending along the main line of resistance. Units of regiments, which are defending sectors along the main line of resistance and which are located within the boundaries of the counterattacking force, are attached to this force. Upon the destruction of the enemy penetration, the counterattacking force will revert to division reserve, and the original regimental boundaries will be restored.

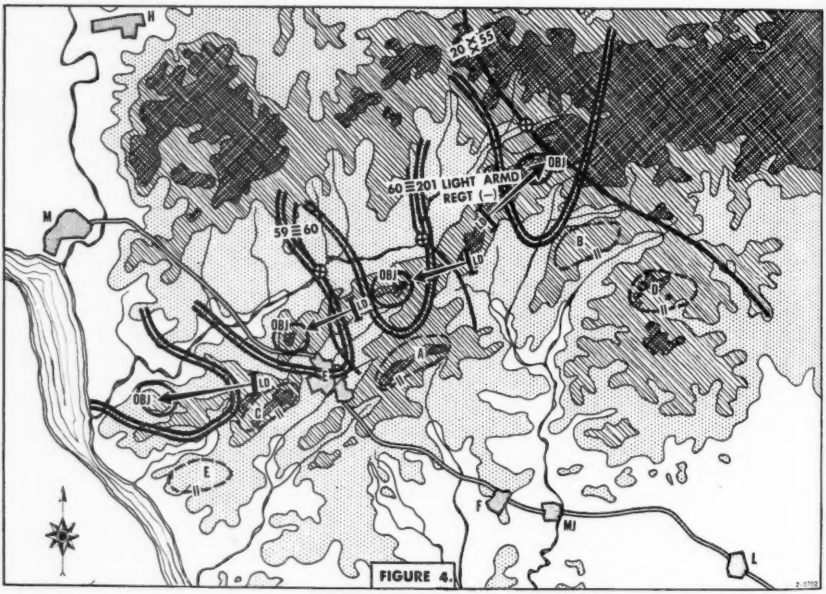


FIGURE 4.

Summary

In preparing counterattack plans, the unit G3 must place himself in the position of the enemy commander and thus determine the most likely areas in which to attack and the objectives of these attacks. Then, by backward planning, he must develop limited objective attacks (counterattacks) to destroy the enemy penetration. The number of such counterattack plans will depend on the terrain, enemy capabilities, and the forces available. Based on the first two situations presented above, four possible penetrations have been illustrated in Figure 4, and for each of these possible penetrations, one or more counterattack plans should be prepared.

The necessity for careful counterattack planning and close co-ordination dur-

ing the execution of the counterattack cannot be overemphasized. Where areas of possible enemy penetration include boundaries between units, as illustrated by the penetration along the boundary between the 59th and 60th Infantry Regiments, in Figure 4, provisions for changing the sectors of responsibility of these regiments during the counterattack must be made. The change in sectors of responsibility will be accomplished by a temporary shifting of the boundary between these units to ensure maximum fire co-ordination and to fix command responsibilities during the counterattack.

It is wishful thinking to assume that any terrain can be held by static defensive operations. A defensive position is only as strong as the offensive spirit of the unit defending it. The offensive spirit in defensive operations is expressed through the vigorous execution of carefully prepared counterattack plans.

NEXT MONTH

Main Articles

What's New in Signals? by Lieutenant Colonel Herman L. Purkhiser; and *Real Estate in a Theater of Operations* by Lieutenant Colonel Erland A. Tillman are included among the main articles.

Foreign Military Digests

The foreign digests include "Clausewitz and the Cold War" from *The Royal Engineers Journal* (Great Britain); and "Combat in Large Cities" from the *Revue de Defense Nationale* (France).

Books for the Military Reader

Reviews of *Generals and Politicians* by Jere Clemens King; and *Soviet Russian Literature, 1917-1950* by Gleb Struve are included.

Can We Defend the Middle East?

Captain B. H. Liddell Hart

The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

FIVE years ago, Reuters—the British and international news service—when taking a photograph, put a globe on the table in front of me and suggested that I should point to the spot where I thought the next war was most likely to break out. After reflection, I placed the pointer on Korea. That photographically recorded prediction of 1946 has had much publicity since the outbreak of war in Korea. In answering a 1948 questionnaire on the risks of war, I put Korea first and Persia second among the points where "an explosion" might be "detonated." I can only hope that the second prediction will not prove as much to the point as the first. But recent omens are more and more disturbing.

Four years ago, the Shah cleared out the Communist puppet government in the frontier province of Azerbaijan. He also suppressed the extreme left-wing Tudeh Party, the Soviet "fifth column" in Persia. For the time being, Stalin swallowed these rebuffs—to many people's surprise. A long lull followed, although the atmosphere was tense. Then, last summer, an official Soviet-Persian reconciliation led to a deceptive relaxation of the tension and, in November, a trade agreement was renewed. The USSR poured in goods that were welcomed warmly by a poverty-stricken people, while the Persian Government naturally hesitated to put a check upon the accompanying inflow of Soviet propaganda. The Tudeh Party began to revive, and its leaders made a well-staged escape from prison.

The renewed Communist activity was assisted greatly by the wealthy clique of conservative politicians and landowners who obstructed, at every turn, the efforts for social reform made by the Shah and his new Prime Minister, General Razmara. At the same time, the Tudeh Party found unwitting allies in the extreme Nationalist Party that has been clamoring for the "nationalization" of the oil fields and the annulment of the agreements made with the British company that developed those oil fields. As always, opposite extremes play into one another's hands, and combine to nullify peaceable settlements.

The rapidly deteriorating situation has been capped by the assassination of General Razmara who had been striving to pursue a middle course internally, and a policy of neutrality externally. The way is open for Stalin's next move.

The weakness of Persia's internal situation is accentuated by her perilously advanced position on the Middle East board—so close to the Soviet's side. And Persia's weakness uncovers the small countries that lie behind—Iraq, Syria, Lebanon, Jordan, Israel, and Saudi Ara-

bia—as well as Egypt and Pakistan in the rear corners.

There is, however, another and stronger piece on the board—Turkey. She stands on the left edge, and her location used to be described as the Near East. That term is still correct—geographically and strategically—because her western frontier lies in Europe, adjoining the boundaries of Bulgaria and Greece, so that she is exposed to invasion from that quarter by the Soviets and their Balkan satellites. But her eastern frontier lies in the Middle East, adjoining Persia as well as the USSR's Caucasus frontier. Her flanking position in that area is of great strategic importance and influence.

Britain and France already have a treaty of mutual assistance with Turkey. Now the United States State Department has confirmed reports that the United States of America is giving "serious consideration" to the idea of associating itself with that treaty. Admiral Carney, the American Naval Commander in Chief in the Eastern Atlantic and Mediterranean, has visited Turkey and had talks with the Government. So has Mr. Thomas Finletter, the American Secretary of the Air Force. General Sir Brian Robertson, the British Commander in Chief in the Middle East, also has been visiting Turkey.

Policy is moving fast and extending its embrace. The big question is whether it is moving too fast and too far in relation to strategic possibilities. Last autumn, General Omar Bradley, Chairman of the United States Joint Chiefs of Staff, publicly expressed the view that America could not undertake military commitments everywhere. He underlined his meaning by indicating that Turkey and Persia were among the places he had in mind—where "local wars" might occur. Although American policy may have been changing since then, it is hard to see how any strong reinforcements could be provided while so large a proportion of America's forces are absorbed in Korea.

The burden of propping up the Middle East has rested mainly on Britain since the French forces left Syria and Lebanon—and Britain's limited resources are seriously strained. She has to face a menace at many points, and must concentrate on guarding the *vital* points. As the heaviest menace lies dangerously close to her heart, it becomes more hazardous for her to dissipate strength in guarding extremities.

In these difficult circumstances, it would be wise to begin an exploration of the problem by seeking an answer to the question of how important is the Middle East to us.

How Important Is the Middle East To Us?

That subject divides itself into two parts—its *strategic* and *economic* importance. But the first part also is divided into defensive and offensive considerations. Defensively, the Middle East has long been regarded as being important, above all, because it covered the Suez Canal route to India and the Far East. Offensively, its importance lies in it being the way of approach, by land or air, to the USSR's oil fields in the Caucasus and her new industrial plants in the Urals—which together constitute the main source of her war making capacity. As for the economic importance of the Middle East, that lies mainly in the

An analysis of the Middle East, and of our ability to defend that area, reveals that, for the time being, the main deterrent to any potential invader lies in strategic bombing attacks against his most vital areas

Iraqi, South Persian, and Saudi Arabian oil fields. There also is one big group of wells in Northern Iraq close to the Turkish-Persian frontier, and a still bigger series of groups around the Persian Gulf.

Let us now examine the question on these counts.

The Suez route to the East was described as "vital" to Britain before she had any footing in the Middle East, and longer still before the Middle East oil supplies were developed. Its importance naturally increased after the building of the Suez Canal. Statesmen and generals have many times described it as the "life line" of the British Empire.

It is still called "vital" on its own account. In 1946, Britain's Foreign Minister, Mr. Bevin, gave renewed emphasis to the importance of that traffic route, and spoke of any potential foreign approach to it as a threat of "cutting our throat." As recently as August 1950, another eminent statesman, who held high office in the wartime Government, spoke of the Suez Canal as "that indispensable link in our communications. . . ."

Yet, in the last war, we were forced to abandon the Mediterranean and Suez as a regular traffic route, from 1940 until 1943, and to divert our convoys around the Cape of Good Hope—even those going to Egypt with troops and supplies. Can it be true to term anything "indispensable" or "vital" when, in fact, we proved able to dispense with it during three crucial years of war? To do so would seem to be a continuance of habit, and not really justified. It would be truer to call the Cape route "vital," and the Suez route merely "valuable." Indeed, on deeper reflection, it becomes clear that even the Cape route is not really vital to the survival of Britain—not nearly so vital as the preservation of Western Europe. Its classification as "vital" has more justification if we are considering the problem of preserving the Commonwealth. Yet, in a pinch, even Australia and New Zealand might be maintained from the United States.

Next, we must examine the problem of the Middle East from the point of view of counteroffensive action in the event of war with the Soviets. It is very important to maintain the Middle East as a springboard—if we can—for it is so close to the USSR's economic-strategic "Achilles' heel." No counteroffensive from Western Europe would have so much possibility of paralyzing the Soviet's war waging power. But the possibility depends on whether we can hold the Middle East, or at least an important part of it, in the early stages of a war. For in warfare, as we have known it hitherto, any offensive or counteroffensive has to be mounted from a secure base—which also must be adequate for the development of a powerful effort.

Middle East Oil

Then we come to the question of the economic importance of the Middle East. That is not large, apart from its oil. It is small even by comparison with Africa—where the potential resources have barely been tapped. The value of the supplies we import from the Middle East is less than a quarter of what we get from Africa, while as a market for our own goods the comparative value of the Middle East is still less.

The Middle East oil is important—although perhaps not quite as important as is often argued. The Middle East has over 40 percent of the world's proved oil reserves, and about 12 percent of present production. The present figure is more material to the present strategic problem—as atomic power may come to replace oil. Moreover, the defense of the West could be maintained by oil supplies from the other side of the Atlantic—and

its economy too—if necessity compelled. The loss of the Middle East oil would cause difficulty, but hardly disaster. It thus seems highly questionable whether the *Economist* was justified in describing the Middle East oil as "economically vital," as it did in July 1950.

In any case, the wartime value of those oil supplies depends on whether we can reckon on holding them in the event of war. Here, we come to the next big question for examination.

Can We Defend the Middle East?

First, we have to consider what may be called the "local" forces. Persia stands in the front line, and much depends on her power of resistance—because her territory forms the gateway to the rest of the Middle East. Her mountain frontier is a big defensive asset, increased by the fact that her mountain barriers extend southward in great depth. But the value of such barriers depends on having forces strong enough to hold them. That lesson was made very clear in the last war, when we saw the German panzer division sweep through the mountainous Balkans within a few days, overcoming obstacles that had been regarded as impassable to mechanized forces. Yet both the Yugoslavs and the Greeks had what were considered as strong armies, composed of tough troops. Their rapid downfall showed that the will to fight is not enough, without modern equipment.

It is only too plain that the Persian Army is weak in all respects by comparison with either of those armies. It has, nominally, some 10 divisions, and the equivalent of a few more in scattered units, but they are low strength divisions and poorly equipped. In the last few years, a small amount of relatively modern equipment has been provided from American and other sources, and American officers have helped with instructional guidance, but it is doubtful whether more than two divisions are yet effectively equipped. In sum, Persia's forces are tiny compared to the vast area they have to cover. Under such conditions, the best chance of putting a brake on the Soviet invasion lies in well-judged demolitions on the roads through the mountains. But an extensive network of demolitions requires not only much skill but large resources—both of which are dubious quantities in this case. It is not surprising that some of Persia's own officers, surveying the problem of defense, should have remarked that the Soviets probably would overrun the country within a week unless outside help arrives in the first few days, and on a big scale.

Behind Persia lies Iraq. The Iraqi Army numbers a little less than 30,000 men, and consists of two small divisions, and the equivalent of a third in scattered units. One division is posted on Iraq's mountainous northern frontier, facing the gateway through Persia. The other is stationed in the flat stretch between Baghdad and the Persian Gulf.

A Soviet invasion would be most likely to come through Persian Azerbaijan and over the passes leading to Rowanduz and Kirkuk. That is the shortest route, since it has little more than a hundred miles of Persian territory to traverse before crossing the Iraqi frontier. The Soviets might use airborne troops to open the way and keep it open. But we have also to reckon with the possibility of a Soviet outflanking thrust into Persia from the area east of the Caspian Sea. If they quickly overran Persia, they might invade Iraq from other points along the 600-mile stretch of frontier between Rowanduz and the Persian Gulf. That is an immense stretch to cover, even though most of it is mountainous. Iraq, south and west of the frontier, is a wonderful arena for the maneuver of armored forces—but Iraq

has no tanks, whereas the Soviets might pour in streams of them, once they had secured the mountain passageways.

On the western flank of Iraq lies Syria. Her army numbers only some 10,000 men, and is of little value except for one mechanized brigade. A small amount of good equipment has been obtained from France, but has suffered from rough handling, and the "casualty" rate has been high, particularly in aircraft. Syria's main defense lies in the fact that it is covered by a desert on the east, and by Turkey on the north.

Behind Syria lies Lebanon, on the Mediterranean coast. She has an army of about 5,000 men—equipped with French weapons. The force is very small compared to the stretch of the frontier, and could hardly be expected to put up any prolonged defense—although the tribesmen from the Jebel Druse are quite good guerrilla fighters.

South of Syria lies Jordan, with a relatively narrow frontier facing east. Her Arab Legion, British trained and well equipped, is much the best fighting force in the Arab countries of the Middle East. It is not much stronger than the Syrian Army in numbers, but its effective strength is much greater. It has formed one small-scale division, and is in process of creating another.

South of Iraq, and of Jordan, lies Saudi Arabia. King Ibn Saud's territory is immense on the map by comparison with any of the other states in the Middle East. The bulk of it is desert—a handicap on the development of his Nation, but a great insurance for its survival. He gained his ascendancy, and extended his domain, with the aid of his relatively large Bedouin tribal forces, well versed in guerrilla fighting. Since 1947, he has formed a mechanized force of 10,000 men, trained by a British military mission. That would be a valuable asset in mobile operations, but would hardly be strong enough to oppose a Soviet advance down the western shore of the Persian Gulf against the newly developed oil fields there.

On paper, Egypt now has the strongest army in the Middle East, excluding Turkey. It numbers about 80,000 men, and is in process of being increased to 100,000. The general staff is planning to create two armored divisions, but at present only the nucleus is formed and equipped—mainly with *Sherman* tanks. A small number of postwar types, including *Centurions*, have been bought from Britain. The air force also has a number of jet fighters. Since the Egyptian Army's utter failure in the attempted invasion of Israel 2 years back, there has been an extensive overhaul of its organization and training. But it will not be easy to rebuild confidence on a firm foundation, or to develop an adequate standard of leadership, from existing sources.

By contrast, the Israeli Army has proved its quality—by the way it repelled the several-sided invasion from the Arab countries in 1948. It is, clearly, the toughest fighting force in the Middle East, with leaders who are vigorous, militarily well educated, and highly intelligent—a rare combination. Its handicaps lie in its smallness and scarcity of powerful modern equipment. Israel had 120,000 men under arms by the end of World War II, but its postwar force, on an active basis, is only about a quarter that size, providing some four mobile brigades. By improved mobilization plans, they can, however, be multiplied three or four times at short notice, while general mobilization probably would produce twice the numbers raised in 1948.

Continued tension between Israel and her Arab neighbors is an obvious handicap to combined action to meet the menace of a Soviet invasion, but it may have some compensation in stimulating effi-

ciency all round. Even so, it is painfully clear from a survey of the "local" forces in the Middle East that these countries are not capable of defending themselves separately or collectively against such an invasion.

How to Strengthen the Middle East Defenses

That brings us to the more important question of what their Western supporters can do to strengthen the defense of the Middle East.

There is only one British division available to back up the local forces, and that lies a long way from the immediate danger points—part of it as far distant as Cyrenaica. And that is all the Western powers are contributing, at present, to the land defense of the whole area. France formerly had a strong force in Syria and Lebanon, but that was withdrawn when these countries chose a precarious independence. The United States has not sent any troops to the Middle East—merely instructors.

In sum, the present land defense of the Middle East all too aptly recalls Hans Anderson's fairy tale entitled "The Emperor's New Clothes." That was the story of how certain impostors, who knew human weakness, pretended to weave for an Emperor a new suit which, they alleged, had the property of being invisible to everyone who was unfit for his office. The Ministers and the Emperor did not care to admit they could not see it—until a little child explained: "But the Emperor has nothing on at all."

It is also difficult to see how any large reinforcement for the Middle East could be provided in the near future. The solitary British division in that area might possibly be increased to two, or even three, by a better organization of the Army as a whole. But the figure could not be increased further without abandoning the Far East or diverting reinforcements urgently needed for Western Europe's defense—the most vital area. As for any American reinforcements, that seems unlikely while the United States remains so deeply entangled in Korea.

As things stand, the main hope of curbing a Soviet advance rests, first, on the demolition of the routes through the mountain belt, and, then, on the maintenance of the obstruction by air action, strongly sustained.

The Royal Air Force has a chain of airfields in the area, the main ones being at Habbaniya, near Baghdad; at Mafraq, in Jordan; and in the Suez Canal area. The Americans have more recently established a big air base at Dhahran—on the west side of the Persian Gulf—in Saudi Arabia. Further afield, they have another big one near Tripoli and are planning several in Morocco—from which a powerful long-range bombing force could operate. At present, however, the actual strength in the Middle East is small while the nearer bases are bound to be insecure as long as no adequate ground forces are available to protect them against a rapid drive southward by Soviet mechanized forces. Moreover, the experience of Korea has cast doubt on the ability of air power to stop a Soviet-type invasion.

There is, however, one important piece on the board that remains to be considered more fully—Turkey. Nature has provided her land with strong barricades, and these are backed by a standing army of about 300,000 men, which could be doubled or more at short notice, while a more extensive mobilization could bring it up to nearly 2 million. The Turks have proved tough fighters in the past—and have recently shown that again in Korea. Their army is in the process of being modernized, with American aid. It suffers from growing pains, but should be capable of holding its own in defense—which has al-

ways been its strong point. Whether it could develop an effective counteroffensive outside its own borders is more dubious. A Western spearhead, of picked troops, might make a great difference to the prospect.

If Turkey could stretch out an arm quickly enough to help cover her neighbor, Persia, against a Soviet thrust from the Caucasus, it would make a great difference to the prospect of initial defense—the most important phase. Turkey also would provide a close-up base for a powerful air striking force, and it seems that such a base could be established near the south coast, behind the Taurus mountain belt.

Summary

The conclusion from such a survey is that while the chances of a direct defense of the Middle East are at present scanty, there may be more hope in its indirect defense.

The USSR might push deep down into the central area, but it would be difficult for them to operate with large forces beyond the desert belts—where they could not "live on the country" in their usual way. Thus, there should be a prospect of holding the coastal fringe, particularly on the Mediterranean side, and keeping the Soviets contained in a desert "sack"—an awkward situation for any invader. The possibility would depend, however, not only on the fuller development of the "local" forces, but on timely reinforcements from the West. Light armored divisions, especially if designed to be air-transportable, would be the most promising kind of strategic reserve for the Middle East.

The Middle East offers great scope for the practice of a defensive-offensive "trapping" strategy against an invader who is lured to overstretch himself—as has often been demonstrated in history. If the Western powers could provide sufficient forces of high maneuverability, those potentialities might be exploited. But the West must be made reasonably secure first.

For the time being, the main deterrent lies in the potential retort of strategic bombing against the USSR's most "vital" area, if she should invade the Middle East. That deterrent might be progressively reinforced in the ways suggested.

The United Nations is the best means we have for deciding what is right and what is wrong between nations. It is a great attempt to make the moral judgment of mankind effective in international affairs. Nothing is more important if mankind is to overcome the barbarian doctrine that might makes right.

President Harry S. Truman

In the world today, there are forces on the move that threaten our cherished freedoms. A powerful nation is using fear to intimidate neighboring peoples and to hold satellites in submission. We are therefore compelled to employ *fear of inexorable retribution* against that powerful nation if we are to stop her arrogant and ruthless aggression.

General J. Lawton Collins

The Training of Loss Replacements

Colonel Lloyd R. Moses, *Infantry*
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The views expressed in this article are the author's and are not necessarily those of the Department of the Army, the Army War College, or the Command and General Staff College.

This is the first of a series of two articles on this subject. The second article in the series will appear in the January 1952 issue.—The Editor.

THE training and production of loss replacements, both for partial and full mobilization, require a full review of the losses of the past and a critical analysis of our present doctrine, planning, and practices.

The problem is to assure the field forces in the combat area a sufficiently speedy flow of trained officers and men to maintain all units at authorized strength, and make it possible to keep divisions in intermittent combat indefinitely. Factors effecting this problem include the inherent instability and uncertainty of manpower in time of war; the relatively long pipe line with its many stages, long distances, and large, slow-moving personnel stockage; the drain on military manpower caused by enemy action, disease, and sheer nervous and physical weariness after long months of active participation in battle; and the ever changing nature and techniques of war. The solution will be found in the elimination of proved past errors in organization, procedure, utilization of replacements, and in sound mobilization planning which will permit the orderly expansion of an efficient personnel and replacement training system-in-being as full mobilization is approached.

The Problem

The problem of training thoroughly qualified individual soldiers capable of joining field units as trained loss replacements consists essentially of social integration and the acquirement of the practical knowledge and skills necessary to serve properly as members of a unit. For those without prior military service, this will include the psychological adjustment to life in the army and to combat, as well as basic and advance individual training, including the fundamentals of basic infantry tactics and, in fewer numbers, specialized training for positions requiring higher skills and leadership. While exacting a strict and just discipline, the dignity and integrity of the individual must be sustained.

The scope of this article will include

The problem of providing qualified soldiers as replacements consists essentially of social integration and the acquirement of the practical knowledge and skills necessary to serve properly as members of a unit

a statement of the evolution of the replacement system, its characteristics and application in comparison with a unit replacement system, and the mechanics of training and producing the proper number of personnel by arm, service, and by military occupational specialty number at the required rate.

The range of this article is limited to those essentials relating to bulk loss replacements produced largely through the replacement training system and the service schools.

Specifically, this article is an analysis of the essential training that battlefield loss replacements should receive prior to joining units in combat, and the development of a program suitable for use during mobilization.

The Problem of Replacement Training

Statement of Factors

High casualty rates among combat personnel have a serious affect upon the efficiency of front-line units. It is the mission of the replacement system to furnish trained individuals for the combat zone by the early provision of an adequate supply of replacements in proportion to anticipated relative losses.

A *personnel loss* is any reduction in the assigned strength of a unit occasioned by enemy action, disease, accident, and administrative action including rotation. The rate of loss varies with the theater of operations, climate, terrain, state of training of troops, and type of combat. *Gross* losses include, in addition to those killed, captured, and missing, personnel evacuated to a hospital and dropped from unit rolls. *Net* losses are computed by deducting from the gross loss those returned to duty within the theater. The resultant data are used as a basis for determining personnel requirements from the Zone of Interior.

In considering personnel losses for future planning, the experience of past wars must be modified by evaluating new factors applicable to new conditions. Estimates of losses in the combat zone are made for specific periods of time and reflect anticipated losses for a given situation. The distribution of these losses is computed by arm, service, and military occupational specialty.

The distribution of battle losses by arm and service within combat divisions shows that 93 percent of the impact is sustained by the infantry. The combat effectiveness of an infantry division is most seriously affected by the personnel losses of its nine infantry battalions since about 87 percent of infantry battle losses occur among riflemen and heavy weapons crewmen.

Experience has shown that nonbattle losses in arms and services are in the same proportion to the total nonbattle losses as the total strength of that arm or service is to the total strength of the unit.

In estimating the losses for all Army troops in the communications zone, battle losses are considered negligible, and nonbattle losses are calculated at 0.5 percent for each month, distributed evenly by arm and service.

The ratio of killed to wounded will be about 1 to 4, except in extreme cold where the death of the wounded will rise somewhat because of exposure to the severe weather. It may be expected that 71 percent of those who reach hospitals will return to duty, 25 percent will be returned to the Zone of Interior for further treatment, and 4 percent will die.

Among personnel losses caused by disease and nonbattle injuries, 96 percent will return to duty after varying periods of treatment, with the average at 19 days.

Prolonged exposure to combat and hardship results in the physical and mental deterioration of the individual and must be accepted as a basis for planning. The

problem of rotation was recognized in World War II, but the unavailability of replacements precluded full implementation of the plan.

Maximum combat efficiency is reached at the fourth or fifth month and, thereafter, begins to drop. The new replacement reaches the average level of combat efficiency after about 3 months of combat. After reaching that point, he is a full-fledged veteran for the next several months and is even more valued as a combat soldier than men of longer battle experience.

Trained Replacements Essential

From the foregoing, it is apparent that the timely arrival of trained replacements is essential to the success of combat operations. This is particularly true if the minimum number of combat divisions are organized and engaged in combat continuously, or for long periods of time, with reliance placed upon the ability of the replacement system to maintain fighting elements. If a constant flow of replacements could be established, from entry into the service to using agency, and if the requirements were constant, the problem would be simplified greatly. However, this is not possible because of the characteristics of the replacement system both in the Zone of Interior and in combat areas.

Most combat commanders of the recent war were critical of the numbers and status of training of the replacements they received. They viewed with alarm the effect of these weaknesses on the strength of units and on the number of cases of combat fatigue. Units of training were stripped of trained individuals in order to satisfy emergency calls for replacements. For the lack of a sound personnel accounting and control system, the total replacements shipped exceeded actual losses for all causes on a ratio of 3 to 1.

The time required to process a replacement, from the reception center through the pipe line to destination overseas, is approximately 27 weeks. A vast number of replacements are required to maintain the flow through the pipe line as well as to repair the losses which occur within the pipe line itself. In considering the division slice, world-wide, more than 10 percent of the slice is in the replacement pipe line during a major war. In a 12-million-man force, this amounts to 1,224,000 men—more than the total manpower of 63 divisions.

The replacement pipe line starts with the induction stations—the initial facilities involved in military manpower supply—where it is determined by examinations whether registrants of the Selective Service System meet physical, mental, and moral standards for military service. After processing and assignment to the Army, the inductee is sent to a reception center, usually located at an Army installation, where clothing and certain equipment are issued, personnel records are prepared, and classification is accomplished. Although some inductees are shipped direct to units, this article is concerned with the flow of replacement personnel channeled into the replacement training centers where the trainee receives basic and advance individual training, after which he may receive specialized or officer candidate school training, and joins the replacement stream at a later date.

The great majority of replacements are shipped to replacement depots from replacement training centers without further training. Here, they are prepared for overseas movement and transported through the port of embarkation to an overseas port. Upon arrival in a theater of operations, replacement personnel come under the control of the theater replacement command, are moved through one or more replacement depots, and finally arrive at the division replacement com-

pany where they are indoctrinated and assigned to units.

Training conducted at the various links in the pipe line is limited, except at replacement training centers, and is designed to maintain proficiency already attained. In order to facilitate training and control, replacements normally are organized into packets of approximately 50 men and 1 or more officers. With due regard for the advantages of mass training and mass production, the individual replacement system has important and urgent problems awaiting solution.

There is a tendency to hold the importance of the replacement system in a position of relative insignificance during the augmentation period of mobilization, when tactical units are being filled and trained for their wartime missions. The reverse of this is true when tactical units have been deployed and begin to suffer battle losses.

Evolution of the Replacement System

An individual replacement system, as we know it today, did not exist in the Union Army at the time of the Civil War. All recuiting of individuals and units was done on a state-wide basis, upon calls issued by the President for volunteers. At the outbreak of the war, these volunteers were accepted into units, which, in most part, were combat units, organized and trained in the separate states. As the war progressed, the older units suffered heavy combat losses and eventually were reduced to ineffectiveness by disease and desertions. New, untrained units were committed to combat without taking advantage of the invaluable knowledge of the experienced veterans of the older units. This policy was a decisive factor in the over-all losses in the Union Army during the first 2 years of the war. General Sherman stated that the principal error of the Union Army was the lack of a sound replacement system.

The Confederate Congress, in order to assure a supply of military manpower at different intervals, passed a draft law in 1862. The law authorized the assignment of inductees, where required, without respect to state of origin. Replacements joined a regiment when it was out of action, and veteran soldiers had a hand in training new inductees.

It was not until 1913, when Major General Leonard Wood inaugurated summer camps for the training of citizen youths, mostly volunteer students, that the scheme of mass training of individuals appeared. It started with two camps—one at Gettysburg, Pennsylvania, and the other at Monterey, California, with a total enrollment of only 244 men. By 1917, the number of camps was increased to 16 and the enrollment reached 130,000. These men proved to be invaluable throughout the expansion of the Army in World War I, forming the nucleus of the civilian officers' corps. The concept of these camps was retained in the revision of the National Defense Act of 1920, and became the basis for the establishment of the replacement training centers in 1941.

Allied Experience

World War I did not produce an effective replacement system in our Army. The original plan for the American Expeditionary Forces provided each corps with four combat divisions, one replacement and school division, and one base and training division. The latter two were to train and provide replacements for the corps. However, the conditions encountered in Europe required all available forces in the fighting line at the earliest practical date, and the original replacement plan never materialized. Meanwhile, the Army War College, acting upon a directive by the Chief of Staff, United States Army, recommended the establishment of a provisional replacement battalion for each infantry and artillery regiment scheduled for overseas shipment.

This was done, but the personnel of the provisional battalions were absorbed by the parent units or diverted for theater use elsewhere. At the same time, depot brigades were formed at each Army cantonment area in the United States for the reception and training of replacements. Officer replacements were trained and processed through officer training camps. A replacement system finally was established, late in 1918, but the war ended with a shortage of 50,000 replacements before the system became productive. Combat divisions had been inactivated in order to fill and maintain existing units.

In the initial stages of World War I, France maintained 20 corps areas. Each active corps included a replacement unit which procured, trained, and shipped personnel to combat units on a territorial basis. Later, because of the acute shortage of manpower, this system was placed on the army level and, when the war ended, the replacement system was under the French general headquarters for operational control.

The British maintained a territorial replacement system, at the beginning of World War I, based on regional depots. Regiments leaving their home stations would attach a training cadre to the regional depot for the purpose of training and forwarding replacements for the parent unit at the front. One replacement depot was moved to the Continent in support of the British effort. By the end of the war, the concept of territorial integrity was discarded and centralized control was established in the general headquarters for the theater, and in the War Ministry for the United Kingdom. The initial system lacked flexibility and depth. The result was that six British divisions were cannibalized in order to provide replacements for the divisions fighting in France. During World War II, the territorial system was used to the maximum and was operated under centralized control.

German Experience

The Germans entered World War I with a single echelon replacement system similar to the British and French systems in that it was both territorial and organizational in character. In 1915, two field echelons were established in order to place a small replacement unit behind each combat division. Later, the system was expanded by the establishment of one large central depot behind the Western front and one behind the Eastern front.

In preparation for World War II, Germany set up a system of training every member of the Army, including enlisted personnel, for the highest possible responsibility in war, retrained former officers and men of the Imperial Army forced out by the Versailles Treaty, federalized the police force, and established officer candidate schools in order to provide replacements for the expanding army. A separate training army conducted all replacement training activities.

United States Experience

While the Axis Powers were mobilizing for the hostilities which engulfed us in 1941, the United States was experiencing a period of revulsion against national security and preparedness. Although a study made at the Army War College, in 1934, recommended "that the establishment of branch replacement centers under War Department control will insure the most efficient operation of the replacement system," prewar planning to meet the problems of organization, provisions for installations, training of personnel to function in the system, and operating procedures was superficial.

In order to understand fully the basis for the adoption of the individual replacement system, rather than unit rotation, in World War II, it is necessary to re-examine the strategic principles upon which we executed the war. It was decided that the troop basis for each of

the overseas theaters would include the combat units necessary to attack, pursue, hold, and support all projected operations; technical, supply, and administrative units necessary to maintain and support the combat units; a bulk allotment sufficient to man overhead installations; and a pool of personnel, trained in the Zone of Interior, in numbers and categories sufficient to replenish personnel losses. It was reasoned that the war would be one of movement in which the major units, once committed, would maintain maximum pressure on the enemy until their missions were accomplished. The tactical employment of combat troops, under this plan, precluded the system of the rotation of units and left no choice but that they receive their replacements while in rest areas, if possible, and in combat, if necessary. An important factor in this consideration was that it took more than a year to train and ship a division, while a loss replacement could be trained in a few weeks of concentrated effort and assimilated into a veteran outfit.

At the close of the war, the Army strength was 8,300,000, including 100,000 in the pipe line. Our ground strength was, for the size of our population, smaller than that of the other belligerents. However, it was greater than a simple comparison of the figures would indicate. In view of the flow of replacements, the 89 divisions in the troop basis were able to continue in combat for protracted periods. The system enabled each army commander to fight with a few divisions and, therefore, fewer supporting troops. It was reasoned that if the number of divisions is fewer but maintained at effective strength, the power for the attack continues while the logistic problems of traffic and supply become greatly simplified.

The expansion of the Army, at the beginning of World War II, was so great and so rapid in contrast to the replacement training center capacity, and the need for overseas replacements developed so early and was so compelling, that the pipe line was never fully capable of meeting its assigned role. Combat units dropped below full effective strength, and the individual rotation system was never permitted to operate as planned.

The defects found in the replacement system were those of a developmental and supply nature. There was a diffusion of responsibility. Each arm and service conducted one or more replacement training centers and schools for technicians. In 1942, control of schools, training centers, and replacement depots was vested in the Army Ground Forces, the Army Service Forces, and the Army Air Forces. Those of the Army Ground Forces operated, in considerable measure, under the Replacement and School Command. In the Army Service Forces, all training establishments were under its commanding general with the supervision of the training of individuals entrusted to the Director of Military Training. Personnel matters were handled by the Director of Military Personnel, who also had Army-wide responsibilities in the replacement field. Responsibilities were further divided among the chiefs of the technical services and the service commands. In the Army Air Forces, separate replacement and rotation policies were established.

Although the War Department assumed responsibility for the supply of trained replacements in accordance with the requirements of the various theaters, no theater commander was given any guidance or directive as to the organization, control, and procedures for operating a theater replacement system. There were no precedents, established procedures, or experienced personnel. There was no accounting system and, at times, the theaters were unable to account for the number of replacements which the War Department reported as having been shipped

during a particular period. There was a lack of understanding of the tremendous logistic, administrative, and training problem. At one time, there were 100,000 men in the European Theater Reinforcement Command. About 2,100,000 casuals, or one-half of the theater strength, had passed through the replacement system. In all theaters, there were too few replacement depots which led to a tremendous overcrowding at peak loads.

In October 1943, the War Department directed that each theater of operations establish a replacement command under a general officer to be responsible to the theater commander. This new command was to process and forward to units all new replacements received from the Zone of Interior, classify and distribute casuals, and conduct a retraining program within the theater.

The replacement system for the European Theater was assigned to the Commanding General, Services of Supply, who set up an administrative echelon in the replacement system for general supervision, and then delegated command functions to the base sections. The administrative officer often found his mission at variance with that of the Services of Supply. Base section commanders were diverting personnel from the pipe line, and combat units were failing to receive scheduled replacements. As a result of this confusion, the Ground Force Reinforcement Command was established, and prompt and steady improvement was shown throughout the remainder of the war. The theater replacement level of 60 days was adopted after the Normandy landings. As the war progressed, 16 replacement depots ultimately were required, although only 6 were organized and trained in the Zone of Interior. This situation resulted in poorly trained depot overhead personnel and inadequate facilities.

One of the major functions of the Ground Force Reinforcement Command was the conduct of all training and retraining including infantry conversion training, officer conversion and refresher training, officer candidate schools, and specialist schools. The losses during the Normandy landings and the advance across France were 12 percent higher for the infantry than had been planned, making the infantry losses about 82 percent of all losses. This, coupled with the failure of the Selective Service System to furnish 100,000 inductees as scheduled, just before the German counteroffensive in December 1944, created an acute shortage of infantry replacements.

To assist General Eisenhower, Lieutenant General Ben Lear, who was then Commanding General, Army Ground Forces, was made Deputy Theater Commander. This gave General Eisenhower an outstanding general officer who would devote his attention to this critical readjustment of personnel. Retraining centers were established where 100,000 men, during the period January-May 1945, were retrained for infantry duty. In addition, 136,800 limited service personnel were trained for noncombat duty, 5,626 selected noncommissioned officers were sent to officer candidate schools, and 3-week indoctrination courses were conducted for battlefield appointed infantry lieutenants.

Prior to 1 June 1944, when a Headquarters, Replacement and Training Command, for the Mediterranean Theater was established, there was no system worthy of the name. Base commanders were faced with the problem of feeding, distributing, and forwarding replacements who arrived in their areas. The new command was placed on the level of the Fifth and Seventh Armies and the Services of Supply, and reported directly to the theater commander. Immediate improvements resulted, in that stagnation of personnel in the pipe line was prevented, and retraining was undertaken to help meet theater

requirements. An infantry conversion training center was established, and 15,000 men, drawn from categories where surpluses existed, were trained and distributed to combat units. An engineer school for the use of Bailey bridges and mines, as well as schools for training in mountain warfare, leadership, and signal and armor operations, were established.

In the Pacific areas, the problem was accentuated by long distances and isolated campaigns. The Southwest Pacific Theater assigned replacement responsibility to base commanders which resulted in three depots and nine battalions scattered throughout the area with no centralized control. The Pacific Ocean Areas were supported by 4 depots and 17 battalions, with headquarters at Oahu, all under central control.

In all theaters, the success of the replacement system depended upon the high leadership qualities displayed rather than on any other factor. Where depots and units conducted effective orientation and indoctrination and exercised initiative in providing the best available housing and transportation facilities, discipline was good and absence without leave rates were low.

The Army always needs young people of intelligence, imagination, and character. Particularly today, in this time of challenge, we can never have too many with these qualifications—and we can guarantee such young men and women unlimited opportunity to shoulder increasingly heavy responsibilities to the full limit of their capacity.

Secretary of the Army Frank Pace, Jr.

A fact that bears constant reiteration is that man has always been the most important ingredient of armies. In the Army, unlike the Navy and Air Force, the basic element is not a ship nor a plane but the individual soldier. And new weapons only serve to increase his importance.

General J. Lawton Collins

What's Behind You?

Lieutenant Colonel Kenneth G. Pavey, *Infantry*
Instructor, Command and General Staff College

IN THE type field army there are more than 400,000 troops; as well as nearly 400,000 weapons, varying from the automatic pistol to the 240-mm howitzer. In addition, there are more than 100,000 vehicles of all sizes, from the jeep to the tank. Each of the 400,000 men in the type field army depends in some way on weapons and vehicles. Although only a part of the matériel of war, weapons and vehicles comprise a major portion of the tools provided a commander. Staff officers, in planning, work with these tools constantly. Commanders use them tactically and administratively in attaining assigned objectives. Certainly, weapons and vehicles play a major role in the conduct of military operations.

Most commands initiate operations with a full strength of vehicles and weapons. Commanders realize their responsibility for maintaining the equipment they have. They know, however, that the resupply of weapons and vehicles, to replace those worn out or destroyed, is provided by someone behind them. They know also that maintenance beyond the capability of their units is the responsibility of someone farther back from the front lines. The organization that provides the replacement of weapons and vehicles, and furnishes the maintenance service for these items, is the Ordnance Corps. As the supply and maintenance of ordnance equipment is a tremendous and important problem, all commanders and staff officers should have a general knowledge of the ordnance system which provides it.

Operating Organization

To understand the system, some knowledge of the operating organization is necessary. The ordnance organization for general supply (all except ammunition) and maintenance consists of three ordnance groups. Ammunition supply is accomplished by a fourth group. Each general supply and maintenance group has a specific mission, and all function under the operational control of the field army ordnance officer. For purposes of clarity, we shall call them the 1st, 2d, and 3d Ordnance Groups.

The 1st Ordnance Group

The 1st Ordnance Group, illustrated in Figure 1, is the farthest forward of the three groups. The mission of the group is to provide ordnance support to divisions and to corps troops.

Weapons and vehicles comprise the major portion of the tools of war. Commanders must appreciate the importance of the ordnance mission and the many tasks involved in providing adequate ordnance support

Forward Medium Support Ordnance Battalion

The mission of each forward medium support ordnance battalion is to provide ordnance support to a designated corps. The types of companies included in this battalion are the:

Medium maintenance company.—This unit provides support for all nondivisional *combat* units of the corps and assists the infantry divisions of the corps as required. It furnishes ordnance general supplies to using units, inspects organizational maintenance, and repairs ordnance equipment for return to the user. It performs field maintenance on small arms, artillery, instruments, and tracked and wheeled vehicles.

Medium automotive maintenance (MAM) company.—This unit provides ordnance support for nondivisional *service* troops. It furnishes ordnance general supplies to using units, inspects organizational maintenence, and repairs ordnance equipment for return to the user. It performs field maintenance on small arms and vehicles only. Two identical wheeled vehicle maintenance platoons enable the company to operate in multiple locations.

Recovery company.—This unit augments the battlefield recovery facilities of the division and corps combat troops. It provides facilities for the evacuation of disabled ordnance equipment from battle areas to the forward medium support ordnance battalion and the corps collecting point. The company also assists other ordnance companies in moving. Normally, one recovery company is required in each corps area. It is interesting to note, in passing, that this company has 12 45-ton semitrailers with tractors which are used as tank transporters.

Forward Heavy Ordnance Supply and Maintenance Battalion

One forward heavy ordnance supply and maintenance battalion assists each forward medium support ordnance battalion by accomplishing maintenance work beyond the capabilities of the latter, and by replenishing ordnance general supplies consumed or issued by the ordnance medium maintenance companies. Unlike the forward medium support ordnance battalion, it usually has no direct contact with using organizations but deals only with *ordnance* units. The heavy maintenance companies assist the medium maintenance companies and divisional ordnance units (armored and infantry) by accepting work beyond the capabilities of the medium and divisional units, by repairing ordnance equipment for return to the organization from which the work was received, or for return to stock in instances where replacement already has been effected. The presence of these heavy maintenance companies, well forward in the battle area, ensures the maximum repair and return of ordnance equipment to service without the loss of time which otherwise would be experienced if evacuation farther to the rear were required in all cases. However, because of its proximity to the battle area, the full measure of reinforcement and assistance required by the forward medium support ordnance battalion and by the division ordnance units is not provided by the forward heavy ordnance supply and maintenance battalion. This battalion is assisted by additional heavy maintenance units in the 3d Ordnance Group which will be examined later. The type companies included in the forward heavy ordnance supply and maintenance battalion are the:

Heavy maintenance company.—This unit carries heavier and more extensive repair equipment than does the divisional ordnance unit and medium maintenance companies. The heavy maintenance company normally works only on small arms, artillery, instruments, and tracked vehicles.

Heavy automotive maintenance (HAM) company.—This unit carries heavier and more extensive equipment than the MAM company. The HAM company usually works only on wheeled vehicles. HAM companies reinforce the division ordnance service, the MAM companies, and medium maintenance organizations.

Depot company.—The ordnance depot companies carry approximately 15 days' level of fast moving spare parts and supplies (except vehicles and towed artillery) for issue to the ordnance maintenance companies of the forward medium support ordnance battalion, the divisional ordnance units, and the forward heavy ordnance supply and maintenance battalion.

Reclamation and classification company.—This unit establishes and operates a collecting point for ordnance equipment. It inspects all equipment received at the collecting point to determine whether the equipment is repairable within the facilities of the army, requires evacuation to base shops, or should be classified as not economically repairable and, therefore, stripped of its reclaimable components. The company strips, for recoverable components, those items classified as not economically repairable, performs minor reclamation of parts and assemblies, and delivers serviceable parts and assemblies secured from the above operation to the depot companies of the battalion. It ships unserviceable but reclaimable items to the maintenance companies of the battalion, or to the reclamation and classification company of the heavy maintenance battalion of the 3d Ordnance Group.

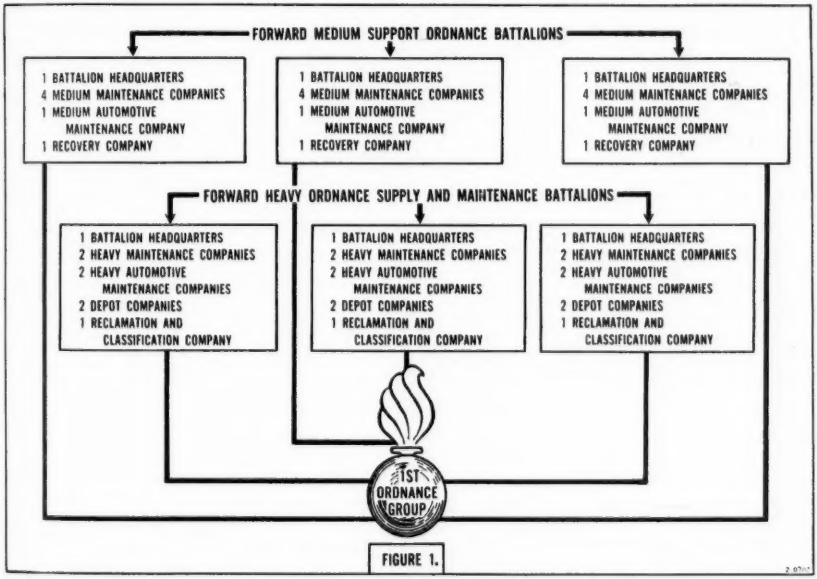


FIGURE 1.

The 2d Ordnance Group

The mission of the 2d Ordnance Group is to provide field maintenance and general supply to army units located in or passing through the army service area, including the rehabilitation of the ord-

nance equipment of those units withdrawn from combat for rest.

Army service medium support ordnance battalion.—The entire army service area is divided between two army service medium support ordnance battalions to ensure that all units located in or passing through the army service area receive medium ordnance support. One medium maintenance company in each battalion supports army artillery units within the army service area. The requirements for MAM companies are based on the density of wheeled vehicles in the army service area.

Army service heavy ordnance supply and maintenance battalion.—One army service heavy ordnance supply and maintenance battalion reinforces and assists the army service medium support ordnance battalions by accomplishing field maintenance work beyond their capabilities, and by replenishing ordnance general supplies consumed or issued by ordnance maintenance companies of the 2d Ordnance Group.

Ordnance rehabilitation battalion.—One ordnance rehabilitation battalion is required to inspect and rehabilitate the ordnance equipment of units withdrawn from combat for rest. This unit is highly mobile and may be dispatched to any part of the army area to perform its work for units withdrawn from combat for periods sufficiently long enough to warrant a rehabilitation program.

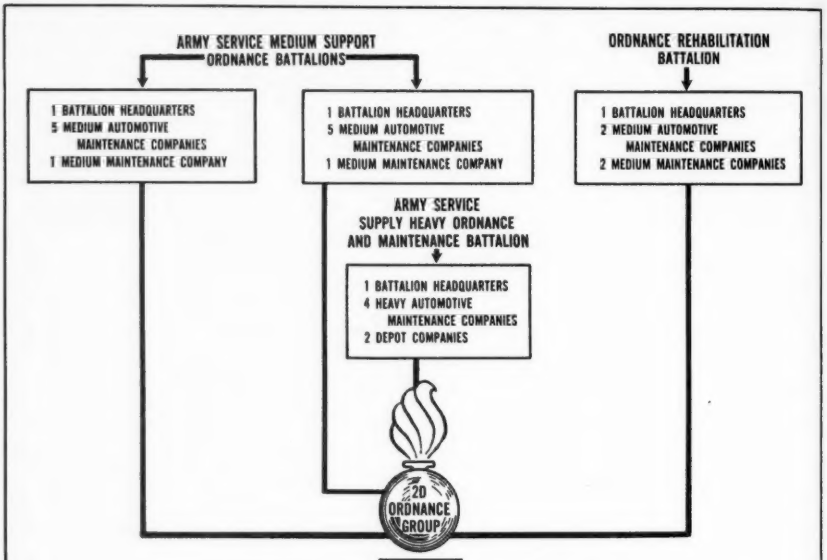

ARMY SERVICE MEDIUM SUPPORT ORDNANCE BATTALIONS
1 BATTALION HEADQUARTERS
5 MEDIUM AUTOMOTIVE MAINTENANCE COMPANIES
1 MEDIUM MAINTENANCE COMPANY
1 BATTALION HEADQUARTERS
5 MEDIUM AUTOMOTIVE MAINTENANCE COMPANIES
1 MEDIUM MAINTENANCE COMPANY
ORDNANCE REHABILITATION BATTALION
1 BATTALION HEADQUARTERS
2 MEDIUM AUTOMOTIVE MAINTENANCE COMPANIES
2 MEDIUM MAINTENANCE COMPANIES
ARMY SERVICE SUPPLY HEAVY ORDNANCE AND MAINTENANCE BATTALION
1 BATTALION HEADQUARTERS
4 HEAVY AUTOMOTIVE MAINTENANCE COMPANIES
2 DEPOT COMPANIES
2D ORDNANCE GROUP

FIGURE 2.

The 3d Ordnance Group

The four principal functions of the 3d Ordnance Group are to operate the:

1. Army ordnance general supply depot.
2. Army artillery and vehicle park.
3. Army light aircraft maintenance service.
4. Heavy maintenance shops required to complete the ordnance field maintenance service within the army.

Army ordnance general supply depot.—

The army ordnance general supply depot is operated by an ordnance battalion. This battalion is the port of entry, into the army area, for ordnance general supplies, except towed artillery and vehicles. The battalion determines the requirements for ordnance general supplies, *except towed artillery and vehicles*, and initiates procurement action on nonregulated items. A stock level of 15 days of supply is maintained by the army ordnance general supply depot, and replenishment issues are made only to the other more advanced depot companies, and to the maintenance companies of the 3d Ordnance Group.

Army artillery and vehicle park.—The artillery and vehicle park company, one medium maintenance company, and one MAM company under a battalion headquarters constitute the organization operating the army artillery and vehicle park. All "rolling" items of ordnance enter the army area at the artillery and vehicle park, which is responsible for the receipt, inspection, and servicing of the utility stock of towed artillery and vehicles required by the army. The artillery and vehicle park company is responsible for the storage and distribution of towed artillery and vehicles. The maintenance companies assist in the inspection and maintenance of ordnance matériel in the artillery and vehicle park. Determination of the requirements for, and the procurement of, towed artillery and vehicles is accomplished by the army ordnance officer, who also directs their distribution. Vehicles may be moved forward to maintenance companies or to using units in accordance with distribution instructions.

Army light aircraft maintenance battalion.—Four ordnance light aircraft maintenance companies, administered by a battalion headquarters, provide the field maintenance for light aircraft and the replenishment of light aircraft spare parts and supplies consumed in organi-

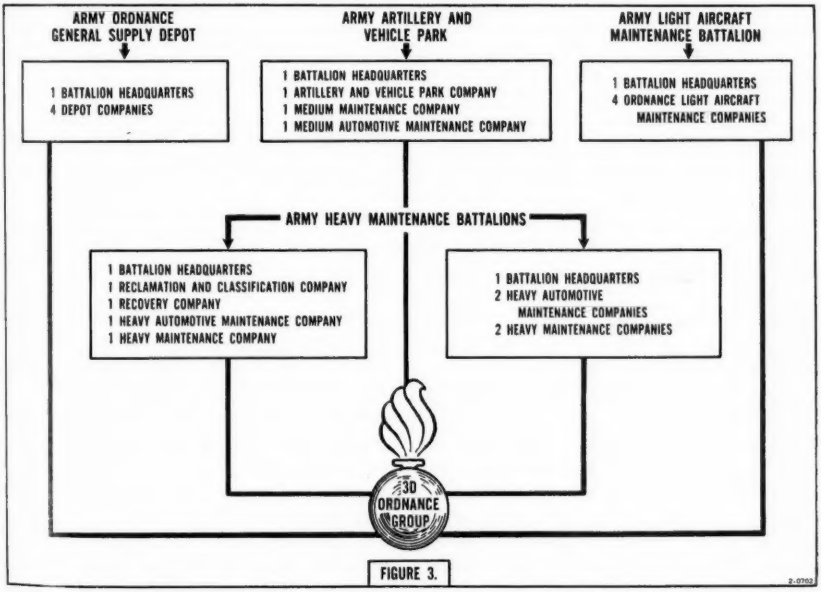

ARMY ORDNANCE GENERAL SUPPLY DEPOT
1 BATTALION HEADQUARTERS
4 DEPOT COMPANIES
ARMY ARTILLERY AND VEHICLE PARK
1 BATTALION HEADQUARTERS
1 ARTILLERY AND VEHICLE PARK COMPANY
1 MEDIUM MAINTENANCE COMPANY
1 MEDIUM AUTOMOTIVE MAINTENANCE COMPANY
ARMY LIGHT AIRCRAFT MAINTENANCE BATTALION
1 BATTALION HEADQUARTERS
4 ORDNANCE LIGHT AIRCRAFT MAINTENANCE COMPANIES
ARMY HEAVY MAINTENANCE BATTALIONS
1 BATTALION HEADQUARTERS
1 RECLAMATION AND CLASSIFICATION COMPANY
1 RECOVERY COMPANY
1 HEAVY AUTOMOTIVE MAINTENANCE COMPANY
1 HEAVY MAINTENANCE COMPANY
1 BATTALION HEADQUARTERS
2 HEAVY AUTOMOTIVE MAINTENANCE COMPANIES
2 HEAVY MAINTENANCE COMPANIES
30 ORDNANCE GROUP

FIGURE 3.

zational and field maintenance. Each company performs these functions for approximately 150 light aircraft. One ordnance light aircraft maintenance company is located near each corps airstrip and at the army airstrip. The difference in light aircraft inspection procedures and maintenance cycles precludes any mixing of light aircraft technical skills with those of the armament or vehicle maintenance personnel, and a distinct organizational structure is preserved. The ordnance light aircraft maintenance company located at the army airstrip receives all light aircraft delivered to the army, whether they are flown in or arrive crated. Crated light aircraft are assembled and tested by the ordnance light aircraft maintenance company at the army airstrip prior to issue. Light aircraft spare parts are received and stored by the army ordnance general supply depot, but are distributed by the ordnance light aircraft maintenance company at the army airstrip to the other ordnance light aircraft maintenance companies, who, in turn, replenish organizational flight sections.

Army heavy maintenance battalions.— The heavy maintenance companies required to round out and complete the field maintenance service within the field army are placed in the two army heavy maintenance battalions of the 3d Ordnance Group. One of the battalions includes a reclamation and classification company and a recovery company. These two battalions ensure that all needed unserviceable but repairable ordnance matériel is repaired without further evacuation; that all recoverable matériel excess to the needs of the army is preserved prior to evacuation to the communications zone; and that the unserviceable, nonrepairable residue is transferred to quartermaster salvage installations.

Procedures

Now that we have examined the organization for ordnance support of a type field army, let us look at the procedures used in providing this support. There are two general classifications of troops (according to location) to be supported. The first of these includes division units, corps nondivisional combat units, and nondivision service units in the corps area. By examining the system in one corps area, we can obtain a picture of ordnance support throughout the army area forward of corps rear boundaries. (See Figure 4.)

All using units receive supply and maintenance support from a specifically designated ordnance unit. Nondivisional service units in the corps area have a relatively low requirement for weapon supply and maintenance and a high requirement for vehicle maintenance. These units receive both supply and maintenance support from the medium automotive maintenance company of the forward medium support ordnance battalion.

In addition to wheeled vehicle maintenance and supply, corps nondivisional combat troops require maintenance and supply of weapons and tracked vehicles. These units receive both supply and maintenance support from the medium maintenance companies of the forward medium support ordnance battalion.

Division units receive supply and maintenance support from the division ordnance company or battalion which, in turn, draws supplies from the depot companies of the forward heavy ordnance supply and maintenance battalions. Division ordnance units receive maintenance assistance and support from the medium maintenance companies and medium automotive maintenance companies of the two forward medium support ordnance battalions supporting the corps. (Both ordnance battalions shown in Figure 4 are a part of the 1st Ordnance Group.)

The second classification of units requiring ordnance support consists of com-

bat and service units located in or passing through the army service area. (See Figure 5.)

As is the case forward of the corps rear boundary, all using units located in the army service area receive supply and maintenance support from a specifically designated ordnance unit.

Combat units (mostly antiaircraft artillery) receive supply and maintenance support from the medium maintenance company of the army service medium support ordnance battalion. Service units receive supply and maintenance support from the medium automotive maintenance companies of the same battalion. Transient combat troops receive supply and maintenance support from the ordnance rehabilitation battalion. All ordnance units shown in Figure 5 are part of the 2d Ordnance Group.

We have now provided for the maintenance support and general supply, less vehicles, towed artillery, and aircraft, for all using units. The system for aircraft maintenance and supply is relatively simple, since one ordnance light aircraft maintenance company operates near each corps airstrip and adjacent to the army airstrip.

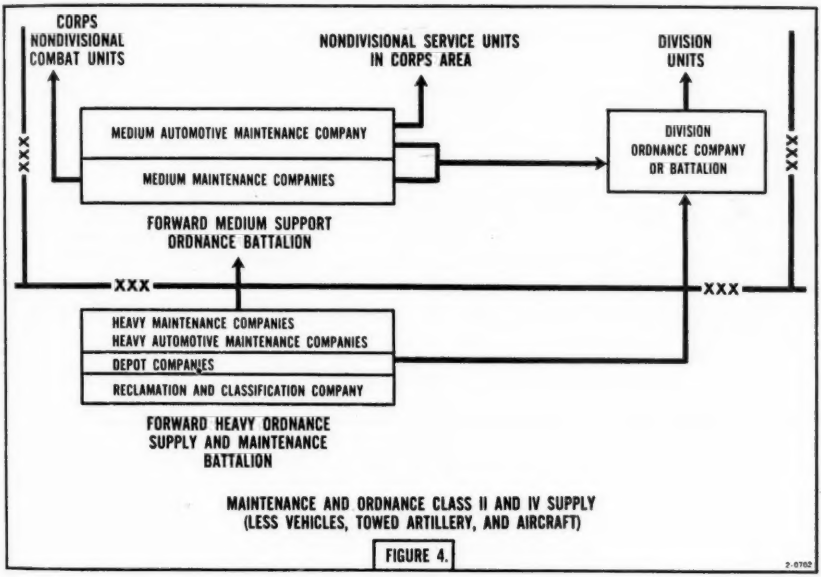


FIGURE 4.

The supply of towed artillery and vehicles follows maintenance channels.

The light armored regiment shown in Figure 6 draws vehicles and towed artillery from the medium maintenance company which also provides it with ordnance Class II and IV supply and maintenance. The medium maintenance company draws wheeled vehicles from the heavy automotive maintenance company, and tracked vehicles and towed artillery from the heavy maintenance company. These companies requisition vehicles from the army artillery and vehicle park.

Division units draw vehicles and towed artillery from the division ordnance com-

pany or battalion. The division ordnance unit is supplied by the heavy maintenance company and heavy automotive maintenance company which, in turn, draw from the army artillery and vehicle park.

The transportation truck battalion, unlike the light armored regiment and division units, requires only wheeled vehicles. This battalion draws its vehicles from the medium automotive maintenance company from which it receives supply and maintenance support. The medium automotive maintenance company is supplied by the heavy automotive maintenance company which, in turn, draws from the wheeled vehicle section of the army artillery and vehicle park.

Note that for the supply of artillery and vehicles, using units normally draw from only one ordnance unit, and this unit is the same one which provides general supply and maintenance to the using unit.

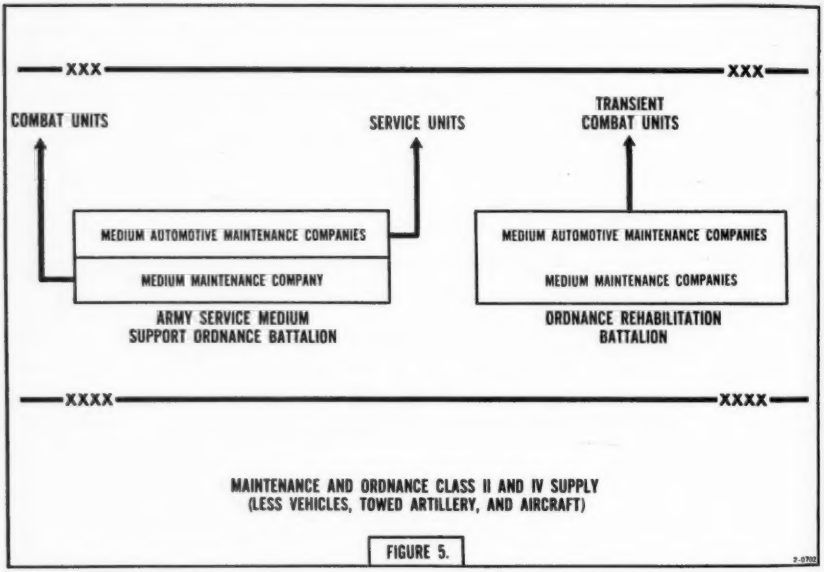


FIGURE 5.

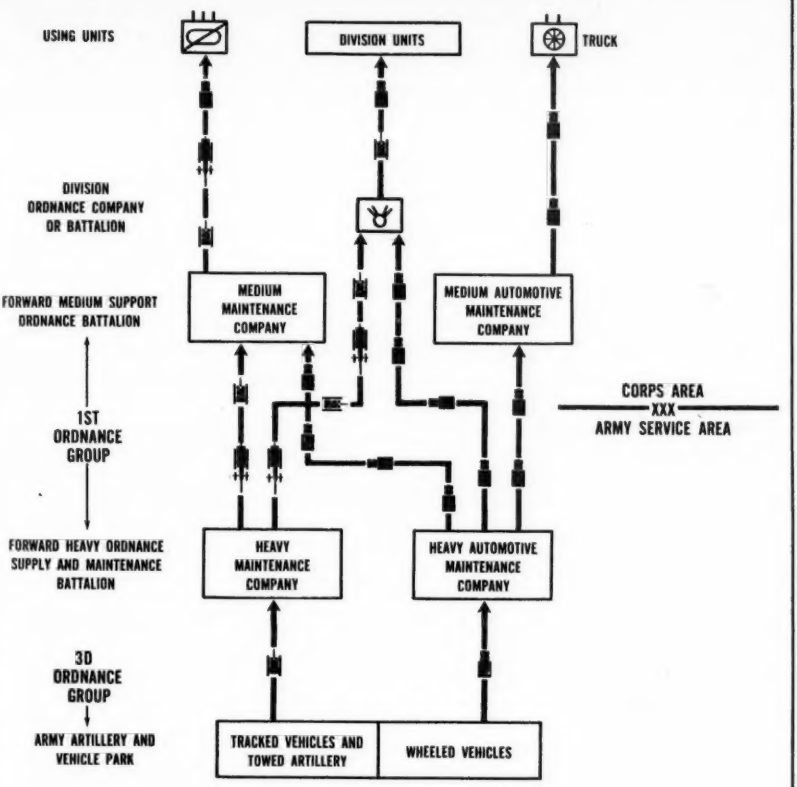
Flexibility

In the foregoing paragraphs, we have set forth a representative organization and indicated the procedures for furnishing ordnance general supply and maintenance to the type field army. This organization is *not* fixed. The composition of the battalions and groups, like that of armored combat commands, is determined by the mission, the terrain, and the situation—or, in other words, by the density, activity, and nature of matériel which is being used.

Procedures, likewise, are *flexible*. They are modified and revised in accordance with the situation with but one idea in mind—to obtain the maximum ordnance support possible in the most expeditious and economical manner.

Conclusion

It is beyond the intent of this article to give commanders and staff officers



SUPPLY FOLLOWS MAINTENANCE CHANNELS

THE FIGURE DEPICTS THE FLOW OF VEHICLES AND TOWED ARTILLERY IN A THEORETICAL SITUATION IN WHICH REPLACEMENT ITEMS ARE AVAILABLE IN EACH MAINTENANCE UNIT. ANY OF THE INTERMEDIATE UNITS BETWEEN THE ARTILLERY AND VEHICLE PARK AND THE USING UNITS OR DIVISION ORDNANCE UNITS MAY BE BYPASSED WHEN THE SUPPLY STATUS DOES NOT PERMIT INTERMEDIATE STOCKAGES.

FIGURE 6.

2-0702

a detailed understanding of the ordnance system in the type field army. If it has helped to provide an understanding of the ordnance support required, then it has served its purpose, for all officers should appreciate the importance of the ordnance mission, the problems that must be solved, and the magnitude of the tasks involved in providing adequate ordnance support.

They should, above all, realize that the efficiency and adequacy of ordnance support depends, in large measure, upon asking only for that which is needed, and of taking care of the matériel that they have.

We have been moving toward interim goals for Army, Navy, and Air Force strength. It now appears, as we review our strategic situation in the light of world events, that these goals may need to be raised, whether or not we have an armistice in Korea.

President Harry S. Truman

In building our store of military supplies, we must avoid two possible extremes. If we fail to maintain sufficient arms, vehicles, ammunition, and other supplies-in-being, we might find ourselves—as in 1941—woefully unprepared to equip a rapidly mobilizing wartime Army. But if we devote too much of our resources to the creation of weapons now, an emergency might find us with a preponderance of obsolete weapons.

Officers' Call

Preparation of a Staff Study

Lieutenant Colonel Homer K. Curtis, *Artillery*
Instructor, Command and General Staff College

IN THE military profession, good writing is a useful and necessary tool. The ability to express ideas, in writing, in a clear, brief, and logical manner greatly facilitates an officer's performance of his duties. Good writing is an art that can be developed by practice. It cannot be learned entirely from a book. However, the application of certain principles, techniques, and cautions will be extremely helpful.

At division, regimental, and lower echelons, most of the staff co-ordination is conducted by personal conferences. At the higher echelons of command, the amount of staff work and size of the staff require that increasing use be made of written material. Many of the problems requiring decisions by high-level commanders are so complex that a study, analyzing the problem accurately, must be prepared in writing by a member of the staff to assist the commander in making a sound decision.

To be kept foremost in the mind of a staff officer is the realization that he exists primarily to serve his commander. If the commander is to be served well, his staff must function for him in such a manner as to ensure that his time is conserved to the maximum. One of the greatest aids in this respect is proper staff writing. This prevents the commander from being submerged by a large volume of detailed administration and saves him many valuable hours.

Although this article deals primarily with the preparation of a staff study, the characteristics of good staff writing, used in the preparation of all staff papers, apply.

Characteristics of Staff Writing

Staff writing is characterized by certain simple axioms. Some of these are:

1. *Unity.*—A staff paper is concerned with only one subject. If more than one subject is to be presented, a study must be prepared for each item. This characteristic aids in obtaining clarity of thought for both the writer and the reader.

2. *Accuracy.*—A good staff paper is free from mistakes and factual or mechanical errors. It presents the essential facts without bias or distortion.

3. *Brevity.*—Many commanders insist on having the essence of every study presented on a single page. Although this "one-page" rule is a good one, it always

As in all good writing, clarity, brevity, and coherence are essentials in the development of a staff study. While its form is important, the overriding considerations are thoroughness, and logical, analytical thinking

cannot be observed because of the complexities of some problems. However, the ability to present a clear analysis of a problem with maximum brevity is one of the characteristics which marks a good staff officer. Present the essentials. If details are necessary, the proper place for them is in an annex.

4. *Clarity.*—The reader of a staff paper should be certain of the writer's intent. By a careful choice of words and grammatical construction, the author must present his ideas free from ambiguities. Each sentence must be limited to one thought. Long and involved sentences create misunderstanding. It cannot be emphasized too strongly that clarity *always* has preference over brevity.

5. *Coherence.*—Coherence is evolved through the logical development and arrangement of a subject. It is attained, first, by thinking the subject through and seeing it as a whole; and, second, by arranging the various essentials logically and harmoniously.

6. *Emphasis.*—Emphasis is achieved by a careful and thoughtful arrangement of words and ideas, and by stressing the deserving issues.

7. *Simplicity.*—Avoid flowery or elegant words and construction. A simple style will ensure that the reader will observe what is being said rather than being diverted by how it is said.

8. *Abbreviations.*—Because of the necessary repetition of many military terms, certain abbreviations have been authorized. These abbreviations save time and space. They must, however, be used with caution. Only those authorized, generally known, and listed in official military publications should be used. Slang terms are equally dangerous. They are not understood by all and, therefore, should not be used.

Technique of Preparing a Staff Study

Some officers, when confronted with the problem of preparing a staff study for the first time, mentally reflect, "I wish I were back with troops," or "If this were a tactical mission, I would know how to proceed." Just as there are certain fundamental steps to be followed in the successful accomplishment of a tactical mission, so are there certain logical procedures to be used in the preparation of a staff study.

The following steps are helpful in the proper development of the staff study, and are essential to completed staff work:

1. *Study and understand the problem.*—*a.* The commander, the chief of staff, or the head of a staff section may assign a problem for study or the problem may be originated by the author. The directive, containing the problem, may be oral or written, but it should always convey a clear picture of the problem to be solved. If any restrictions or unusual conditions exist, which will affect the solution, they should be set forth in the directive.

b. Usually the problem takes one of two forms. The first type is one in which the feasibility of a given course of action is to be determined. For example, "To determine whether each branch of the service should establish and operate a separate officer candidate school in order to meet the requirements for junior officers in the expanding Army." The second type of problem requires the determination of a course of action to meet the requirements of a given situation. For example, "To determine the procurement plans and policies necessary to meet the requirements for junior officers in the expanding Army."

c. Upon receipt of the problem, the staff officer must examine it carefully to ensure that he understands exactly what is sought. He must be fully aware of any limitations or special conditions imposed. If any doubt exists, he clarifies the point with the person who issued the directive for the study *before* beginning the work leading to a suggested solution.

2. *Prepare a basic work plan.*—Only when the staff officer thoroughly understands his problem does he attempt its solution. Then, and only then, does he prepare a working outline. He determines what information he will require, makes a plan for assembling the information, lists the agencies with whom he will confer, and formulates a self-guiding time schedule. This outline may or may not be committed to writing. The important point to be remembered is that the staff officer must have a logical plan. Other advantages accruing from the formulation of such a plan are savings in time and labor.

3. *Conduct research.*—A staff officer must be curious. In addition to studying pertinent data and files for information, he must consult with other interested individuals and agencies in order to obtain their points of view and broaden his own. Furthermore, other persons may be working on a different but allied aspect of the same problem. This step is best accomplished by personal conferences, less satisfactorily by telephone calls, and least satisfactorily by correspondence. However, for the more complex staff studies, information and opinions should be obtained in writing. Early contact with interested parties will facilitate final coordination.

4. *Consider objectively all facts and courses of action.*—When all the necessary information has been collected, it must be subjected to an open-minded analysis. Personal prejudices and preconceived ideas must not be permitted to influence this analysis. The mass of information then must be screened to eliminate items which are irrelevant. This will accent the facts which have a definite bearing on the problem. Feasible solutions to the problem must be developed and listed, together with their advantages and disadvantages. This will lead the staff officer to clear, reliable conclusions, supported by fact. Such conclusions, once drawn, must be converted into recommendations.

5. *Formulate recommendations, including the details of implementation.*—Valid recommendations are the test of the staff study; the answer to the original problem. The hours of toil given to a staff study are justified only if definite, positive recommendations are made. These recommendations must be simply stated and must chart a clear course of action for the commander. If implementation is required, drafts of the implementing document must be prepared and submitted with the staff study. This is particularly important since experience indicates that staff agencies, which will concur readily in a plan, may object strongly when presented with the implementing directives based on that plan. It is possible, also, that the preparation of the implementing paper will disclose unforeseen obstacles or factors which must be included in the over-all problem.

6. *Redraft and revise.*—The staff officer now is prepared to redraft his paper to achieve the characteristics of good staff writing. He will eliminate an extraneous sentence here, replace a phrase by a word there, emphasize one point as being more important than another, and rearrange the sequence of facts to obtain the desired coherence. The process of screening, sifting, and revising will cease only when the final draft incorporates the desired characteristics of a good staff paper.

7. *Co-ordinate.*—Co-ordination is mandatory. It promotes a wider viewpoint, reduces friction, secures common action, fosters an exchange of ideas, and, most important, saves the commander's time.

a. When a commander receives a staff study from a member of his staff, he must be assured that the study represents the views of every agency of his command having an official interest in the matter. This assurance must be based on the knowledge that complete staff co-ordina-

tion took place prior to the study's submission. Co-ordination by no means implies that all parties are in accord with the study or the proposed solution. It does mean that they must have had an opportunity to express an opinion, and that their opinion, in writing, is included as part of the study.

b. When the revision is completed, the study, in draft form together with any necessary implementing documents, is ready to be used for staff co-ordination. Concurrences or nonconcurrences may be accomplished either orally or in writing. One form is as binding as the other. As a general rule, time permitting, it is wise to obtain written expressions of opinion. If co-ordination must be effected with several agencies, the final draft can be duplicated and dispatched concurrently to all agencies for action on or before an established suspense date. In some cases, a conference of the representatives from interested agencies provides a most effective co-ordinating technique. The conferees must, however, have had ample opportunity to study a draft of the study before attending the conference, and they must be empowered to take final and conclusive action in behalf of their respective agencies.

c. One of three principal comments normally made by a co-ordinating agency is *concur*, *nonconcur*, or *no interest*. A concurrence represents the agency's approval and support of the recommendations. A nonconcurrence denotes that the agency does not support the recommendations or the implementing plan. Detailed reasons, normally in writing, must be given by the nonconcurring agency. The staff officer, confronted with a nonconcurrence, must act in accordance with his sound judgment after he has given fair and careful consideration to the dissenting view. He is not obligated to change his original recommendations. If he elects to override the nonconcurrence, he must list positive reasons to justify his action. The comment *no interest* means that the agency has no official interest in the recommendations or the implementing plan.

8. *Final revision.*—When complete co-ordination has been effected, the staff officer may find it necessary to revise the study. If his original recommendations have changed materially, further co-ordination may be necessary.

9. *Submission.*—After the study has been fully co-ordinated and the final revision has been made, the study, with annexes and implementing documents, should be put in final form. The staff officer then must make a check of the study for its accuracy, neatness, and completeness. If he is completely satisfied and is prepared to stake his professional reputation on the data being correct, it is ready to be submitted to the commander for his decision.

Form for a Staff Study

Shown, in Figure 1, is the form for a staff study as found in Field Manual 101-5, *Staff Organization and Procedure*, dated July 1950. However, the form that is used for a staff study is not all-important; that evaluation is reserved for the thought that goes into the study. It is desirable, nevertheless, to prepare the study in the form as indicated, a form which has been determined to be most appropriate after a careful consideration of the purpose of the staff study and the technique of solving problems demanding logical treatment and analysis. The component parts of this form are:

1. The heading.

2. Paragraph 1, the statement of the problem.

3. Paragraph 2, assumptions.

4. Paragraph 3, facts bearing on the problem.

5. Paragraph 4, discussion.

6. Paragraph 5, conclusions.

Issuing headquarters*
Place of issue
Date and time

File No.----------

SUBJECT: (Sufficient for file identification.)

(Omit any paragraph which is not applicable.)

1. PROBLEM.—Concise statement of the problem in the form of a mission.
2. ASSUMPTIONS.—Any assumptions necessary for a logical discussion of the problem which cannot be accepted and considered as facts. (If you have made no assumptions, omit this paragraph and renumber subsequent paragraphs accordingly.)
3. FACTS BEARING ON THE PROBLEM.—Essential facts, in logical sequence, which must be considered. (If you have no facts to state, omit this paragraph and renumber subsequent paragraphs accordingly.)
4. DISCUSSION.—A careful analysis of the essential facts, presenting considerations pro and con, to arrive logically at the conclusions and recommendations.
5. CONCLUSIONS.—Statement of the results derived from a reasoned judgment of the effects and implications of the essential facts. Alternate lines of action are eliminated in this paragraph. (This paragraph may be omitted in brief studies, in which case the following paragraph is renumbered accordingly.)
6. ACTION RECOMMENDED.—Complete, concise, and clear-cut statement of action recommended permitting simple approval or disapproval. (If recommendations are not required or in order, omit this paragraph.)

Initiating staff officer, committee chairman, or head of staff agency**

ANNEXES: (List those accompanying the study.)

CONCURRENCES: Each staff officer concerned indicates his concurrence by his initials followed by his rank, name, official position title, and telephone number.

NONCONCURRENCES: Each staff officer concerned indicates his nonconcurrence by his initials followed by his rank, name, official position title, and telephone number. In each case, reasons for nonconcurrence should be stated briefly on a separate memorandum, which will be attached as an additional annex.

CONSIDERATION OF NONCONCURRENCES: The author of the staff study states the result of his consideration of any nonconcurrences. If his consideration shows that nonconcurrence cannot be supported, the reasons therefor will be stated. The author will sign or initial this consideration of nonconcurrence.

ANNEXES ADDED: (List the annexes containing nonconcurrences.)

ACTION BY APPROVING AUTHORITY: (Heading not necessary.)

Date

Approved (disapproved), including (excluding) exceptions.

Signature

* Some headquarters utilize a printed routing form containing:

1. A heading.
2. A space in which to insert the office of preparation, together with the name, rank, and telephone number of the officer preparing the correspondence.
3. Spaces for check marks or numbers to indicate the office or offices to which the correspondence is being sent.
4. Spaces for check marks or numbers to indicate the action to be taken by the receiving office (approval, signature, information, concurrence, etc.).

** Signature should include position, title, and telephone number.

FIGURE 1.

7. Paragraph 6, action recommended.
8. Signature.

The heading is similar to that used for an operation order. The file number is for local use in the staff section. The subject is listed as in a military letter, and the same rules of brevity apply.

Paragraph 1 of the staff study is a specific statement of the problem. It should be stated in the form of a mission, such as "To determine whether each branch of the service should establish and operate a separate officer candidate school."

Paragraph 2 contains any pertinent assumptions, if such are required. Assumptions must be derived realistically and must be more probable of concurrence than mere possibility. For example, after President Truman's message to Congress, in March 1948, in which he asked for limited Selective Service legislation, a staff officer, developing plans for the expansion of the Army which would result from such legislation, could have properly assumed that some form of Selective Service legislation will be enacted.

Paragraph 3 contains statements of undeniable fact having an influence on the problem or its solution. For example, a staff officer, in developing a plan for the classification of enlisted men, knows that the classification test forms cannot be printed before 1 March 1953. This fact probably will have an effect on the solution to his problem and should, therefore, be listed.

Paragraph 4 is an analytical discussion of the essential facts, as tempered by the assumptions listed in Paragraph 2. This analysis must include the advantages and disadvantages of each consideration developed. In the completed staff study, this paragraph is only a summary; the detailed discussion will, of course, appear in appropriate annexes.

The mission of the author of the staff study is to furnish the commander with all the facts, both for and against, pertaining to the subject of the study, and to provide a considered opinion reached after a careful analysis and study of those facts. Therefore, care must be taken to point out to the commander the disadvantages of the plan recommeded so that steps may be taken to eliminate or minimize them.

Paragraph 5 presents the conclusions drawn from an open-minded evaluation of the problem, all the possible solutions, and the factors which affect those solutions.

Paragraph 6 must be justified by the discussion, and be in consonance with conclusions. The staff action recommended must be complete. If it is recommended, for example, that a letter signed by the commander be dispatched to a subordinate commander, the actual letter should be drafted and attached to the study as an annex.

The signature must include the name of the author of the staff study, his exact title, and his telephone number. This is important, for this information will enable interested agencies to contact readily the author of the staff study.

Agencies, with which co-ordination was effected, indicate their concurrence or nonconcurrence in the study below the list of annexes. By checking this list, the commander then knows that the other members of his staff have been consulted.

The action by the approving authority, the commander, may or may not appear on the study. If the recommendation is that he sign a letter—which has been prepared and attached as an annex—the fact that he signs it constitutes an approval. If, however, the study proposes a certain procedure or policy, then the signature of the approving authority on the study is sufficient authority to put the policy into effect through the appropriate operating agencies.

Example

Shown, in Figure 2, is an example of a

Department of the Army
Office, ACofS, G4, Logistics
Washington 25, D.C.
1 Aug--------

GSGLD 411
SUBJECT: Repairs and Utilities at Class II Installations

1. PROBLEM.—To determine whether repairs and utilities at Class II installations should remain a function of the army areas, under the supervision of the Chief of Engineers, or be transferred to the Chiefs of Technical Services.

2. FACTS BEARING ON THE PROBLEM.
   a. Army areas are performing the functions in question and have personnel assigned to maintain Class II installations. (Decision, CofS, dated 1 Feb 47.)
   b. Chief of Engineers exercises technical supervision of army area engineer personnel. (TM 5-600.)

3. DISCUSSION.
   a. The present system of repairs and utilities at Class II installations by army areas, under supervision of the Chief of Engineers, has been operative for several years. It offers:
      (1) Study of each maintenance problem by technical experts.
      (2) Uniformity in repairs and utilities procedures.
      (3) Economy of personnel.
      (4) Economy of resources, supplies, equipment, and funds.
      (5) Correlation of problems throughout the area. (Annex 2.)
   b. Chiefs of Technical Services insist they can do a better job of maintaining their own installations. This offers:
      (1) Continuous chain of command from installation to service unit.
      (2) Immediately available maintenance units.
      (3) Thorough knowledge of the local problems.
      (4) Local supply sources.
      (5) Continuous improvement of the installation as opposed to completion of "job requisitions." (Annex 3.)
   c. ACofS, G1, Personnel (Lt Col Jones), states that operation of maintenance, by the technical services, will require personnel to be added to their Tables of Distribution. (Annex 4.)
   d. Supply Division (Mr. Barnes) considers the spreading out of maintenance equipment and supplies to each Class II installation is unjustifiably wasteful. (Annex 5.)
   e. Comptroller (Col Peters) cannot justify increases of budgets of the technical services because of new function. (Annex 6.)

4. CONCLUSIONS.
   a. The present system of handling repair and utilities problems at Class II installations by specialists provides greatest economy of personnel, supplies, equipment, and funds.
   b. Chiefs of Technical Services do not exercise command over this system; command control by them is not necessary to accomplish the repairs and utilities.

5. ACTION RECOMMENDED.
   a. That the present policy of maintenance of Class II installations be continued.
   b. That the draft memorandum attached, which provides for continuing present policy, be approved and dispatched. (Annex 1.)

/s/ J. C. Smith
J. C. SMITH
Lt Col GSC
Service Division
Extension 2981

ANNEXES: 1—Draft memorandum to The Adjutant General which provides for continuing present policy of maintenance at Class II installations (omitted).
2—Discussion by Chief of Engineers (omitted).
3—Discussion by Chiefs of Technical Services (Ordnance, Medical, Signal, Quartermaster, Transportation, Chemical) (omitted).
4—Discussion by ACofS, G1, Personnel (omitted).
5—Discussion by Chief of Supply Division (omitted).
6—Discussion by Comptroller (omitted).

CONCURRENCES:

Organization and Training Division	(X)
Plans Division	(X)
Operations Division	(X)
Chief of Information	(X)
Chief of Engineers	(X)
Intelligence Division	(X)
Chief of Ordnance	(X)
Surgeon General	(X)
Chief Signal Officer	(X)
Quartermaster General	(X)
Chief of Transportation	(X)
Chief of Chemical Corps	(X)

NONCONCURRENCES:
None.

FIGURE 2.

staff study. There are several points, with reference to its preparation and presentation, which are worthy of note.

1. The over-all impression of this study is that it is well organized to solve the problem, and that the research is concise and unbiased.

2. The problem is stated in mission type form and is clear, complete, and brief.

3. No assumptions were necessary in this case and Paragraph 2 became "Facts Bearing on the Problem."

4. In Paragraph 3, the advantages of the system under the Chief of Engineers are presented, followed by the advantages if the Chiefs of Technical Services perform maintenance. The reader can evaluate readily the two courses of action. Detailed discussion is placed in annexes.

5. The conclusions reflect a careful, unbiased evaluation by the author of the staff study.

6. The recommendation is clear, and the device to implement the action has been prepared and submitted with the study.

7. The study incorporates the characteristics of good staff writing and reflects completed staff action on the part of its author.

Summary

There are four points, concerning a staff study, that should be remembered.

1. The form prescribed for a staff study in Field Manual 101-5 is not rigid. Its use is desirable in order to present a logical approach to the solution of a problem, and to provide uniformity in training. A staff officer must be flexible enough in his thinking to adjust himself promptly to whatever form may be prescribed by his particular headquarters.

2. In preparing staff studies, clarity and conciseness are all-important. One should strive to complete the major parts of the study on one page, and append supporting evidence in the form of annexes. Many headquarters require that the study be limited to a single typewritten page.

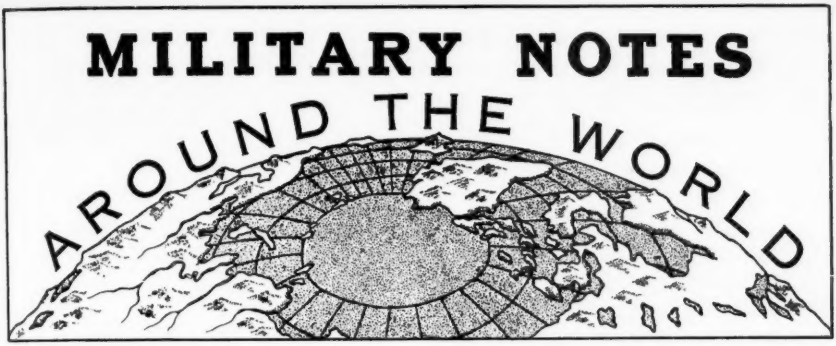
3. Co-ordination is absolutely essential. It should be sought throughout the preparation of the study; that is, in stating the problem, in arriving at the proper course of action, and in the preparation of the implementing papers.

4. Only after the author is prepared to stake his professional reputation on the authenticity of the study should it be submitted.

Since then [June 1950] the training establishment has been more than doubled in size and is moving in high gear turning out the replacements needed for losses in Korea, to implement the Korean rotation program, to provide personnel for new units being activated for General of the Army Dwight D. Eisenhower's North Atlantic Treaty Organization, and to augment our training and school installations.

General Mark W. Clark

MILITARY NOTES AROUND THE WORLD



UNITED STATES

Joint Maneuver

The Department of Defense has announced that a joint Army and Air Force maneuver—designated "Exercise Longhorn" and involving 150,000 men—will be held at Fort Hood, Texas, next March and April.—News release.

Aerial Delivery Container Tested

A disk-shaped container made of synthetic rubber is being experimented with as a means for aerial free fall delivery of gasoline, water, or other liquids to Army troops.

The newly developed container has a capacity of 5 gallons. When empty, it is about 24 inches in diameter and weighs 5 pounds. Filled, the container looks like an inflated pancake, with a flat rim running around the perimeter. No parachute is needed to check its fall, and it may be unloaded from any type of cargo plane.

The container has been tested in free falls from altitudes of 400 to 2,000 feet without bursting or spilling any of the contents. Upon impact with the ground, the container stretches to almost double its size, and after a rebound settles near the point of contact.

Tests have shown that the container may be dropped repeatedly without damage.—*Army Navy Air Force Register.*

Canned Fresh Milk

Fresh milk now comes in cans! Although its high price keeps it from competing with bottled milk at home, 2,000 gallons a day are canned for troops in Alaska and Japan. The canned milk stays sweet for 6 to 12 months without chilling. —*Popular Mechanics Magazine.*

Mobile Field Television Studied

The Army is studying television as a possible adjunct to its defense training program.

The Signal Corps has started experiments with a mobile television system capable of transmitting pictures from remote field activities to military classrooms. This equipment is expected to be of value in "piping" pictures of field exercises to observers, and also to stimulate tactical use of television.—News release.

Defense Spending

The Director of Defense Mobilization recently announced that defense production in the United States is currently running at the rate of 3 billion dollars a month. Half the sum spent each month is going for direct military requirements and the balance for defense-supporting projects such as the expansion of productive facilities.—*The New York Times.*

Improved Litter Platform

An improved, all-purpose litter platform, designed and produced by the Bell Aircraft Corporation, is being used in

The improved, all-purpose litter platform.

Korea for evacuating wounded troops from the battlefields by helicopter.

The new litter-carrying device is a marked improvement over types previously available for rescue operations. Many of the litter carriers used resembled fabric-covered crates with removable lids, and were improvised in the field last winter to protect the wounded from the bitter cold. However, some of the wounded suffered claustrophobia when placed within the narrow unlighted carriers. The radically different Bell litter platform will not cause such an emotion because it neither confines the wounded nor does it limit visibility.

The key feature of the device is a plexiglas cowl which acts as a windshield to protect the head and shoulders of a casualty. It can be removed easily and quickly to place the patient aboard. Excellent weather protection is provided without interfering with ventilation or visibility.—News release.

Quartz Deposits

The General Services Administration has announced that deposits of high quality quartz have been discovered in northern Utah, giving this country its first big domestic supply.

Previously, the United States relied on foreign sources, chiefly Brazil, for quartz used in electronic equipment.—News release.

Sulphur From Industrial Gases

Part of the present shortage of sulphur may be met by a process for the recovery of the essential element from hydrogen sulphide and sulphur dioxide given off in certain industrial processes, particularly in refining petroleum oil and natural gas. The recovery of the sulphur in these byproduct gases will not only obtain a valuable product but also prevent air pollution with gases harmful to animals and plants.

The process consists in passing the hydrogen sulphide through a solution made by contacting sulphur dioxide with a dilute aqueous solution of aluminum sulphate and sulphuric and sulphurous acids. Elemental sulphur settles out.—*Science News Letter.*

Atom Bomb Spotter

An atom bomb spotter, named the radiation lampshade, has been developed to tell civil defense workers just how high up and where a bomb exploded in their area. This is essential information in directing rescue parties to places where there may be lingering radioactivity.

The flash of heat from an atom bomb 2 miles or more away is so intense that it sears paint. This searing occurs only where paint is exposed to direct rays of the bomb. Anything that casts a shadow on the paint prevents burning in the shadowed area. The radiation lampshade is built to record these shadows.—News release.

Plastic Whaleboat

The Navy has unveiled a plastic whaleboat which is three times stronger than a wooden one. The hull, made of thin layers of glass matting and glass cloth covered with resin, is just a shade more than a quarter of an inch thick. A conventional whaleboat of the same size has a hull almost an inch thick. Besides being lighter and sturdier than conventional whaleboats, the new model will not rot, so it does not need to be painted. —News release.

Photographic Airplane

The first jet carrier-based photographic airplane ever developed—the McDonnell *F2H-2P*—has been delivered to the Navy.

The new plane is in the 600-mile-an-hour class and has an initial rate of climb of more than a mile a minute. It has completed successful photographic missions ranging in altitude from 50 feet to 10 miles.

A combination view finder provides the pilot with a clear, unobstructed view of the terrain below and ahead of the airplane. In addition, the pilot, utilizing cockpit controls, can rotate the cameras to any position from horizon to horizon while in flight.—*The New York Times.*

Atom Bomb Carriers

The Chief of Naval Operations has stated that two Navy planes are now equipped to carry the atom bomb, and that trained crews are ready to assemble and install the bombs aboard carriers. The two planes are the North American *AJ-1* (MILITARY REVIEW, Mar 1951, p. 64), a combination piston-jet designed plane, which is the heaviest carrier based model operated by the Navy, and the Lockheed *P2V-2 Neptune*, which also has been launched from and landed aboard Navy carriers.—*Army Navy Air Force Journal.*

Telephoto Lens

A special 40-inch focal length lens assembly has been developed for the Navy to use in studying the operation of mine parachutes at high altitudes. The lens is used with a standard 16-mm motion picture camera.

The new lens assembly was designed and built for special jobs which require long-distance photography. It magnifies so much that it will photograph objects not visible to the unaided eye.

The Navy's new telephoto lens assembly.

The camera and lens are mounted on a power operated gun turret so that the unit can be trained on the object to be photographed with absolute accuracy.—News release.

American Income

The Commerce Department has announced that Americans raised their total annual income from 87 billion dollars in 1929 to 239 billion dollars in 1950, an increase of 175 percent.—News release.

Food Preservation

Atomic energy soon may force the canning kettle to the sidelines, because food preservation by atomic radiation, on an experimental basis, has been achieved by University of Michigan researchers.

Several samples of raw beef have been exposed to gamma rays without development of spoilage or odor or appreciable change in color. Also subjected to the rays and now being studied are bananas, plums, peaches, cherries, grapes, raspberries, and blueberries.—News release.

Aerial 'Traffic Signals'

Realistic "traffic signals" now are being used to help *KB-29* and *KC-97* tanker airplanes refuel bombers in mid-air, during both day and night operations.

Previously, directions from the tanker to the plane being refueled were issued by radio only. Now, "traffic lights" have been installed on the bottom of the tankers to aid in keeping the two planes in the proper position while the fuel is being transferred.

The lights, four red and one green, automatically are triggered by micro-switches connected with the boom. Lettering on the red-lighted oblong panels read "up," "down," "fwd," and "aft," to advise the receiver pilot when his plane is out of position.

When the telescoping section of the boom is extended to the proper length and the boom's elevation angle is correct, the green light glows. However, should the airplane receiving fuel move outside of this position, the green panel darkens and either one or two of the red lights flash on to tell the pilot where to shift.—*Armed Force.*

LST Construction

The Navy has awarded construction contracts for 13 LSTs (landing ships, tank), costing more than 40 million dollars.—News release.

Automatic Blood Processor

A revolutionary new blood-processing device has been developed which collects blood from donors and immediately separates it into plasma and red cells by an automatic process.—*Science Digest.*

Water Purification Process

A water purification process method considered far superior to any method used during World War II has been developed by the Army Corps of Engineers. By effectively removing amoebic cysts from impure water, this process virtually wipes out the source of amoebic dysentery, a potent crippler of combat effectiveness.

A full division can be supplied with daily water requirements by four of the new water purification units. Operated on a round-the-clock basis by four men, these mobile units can process an average of 35 gallons of water a minute.

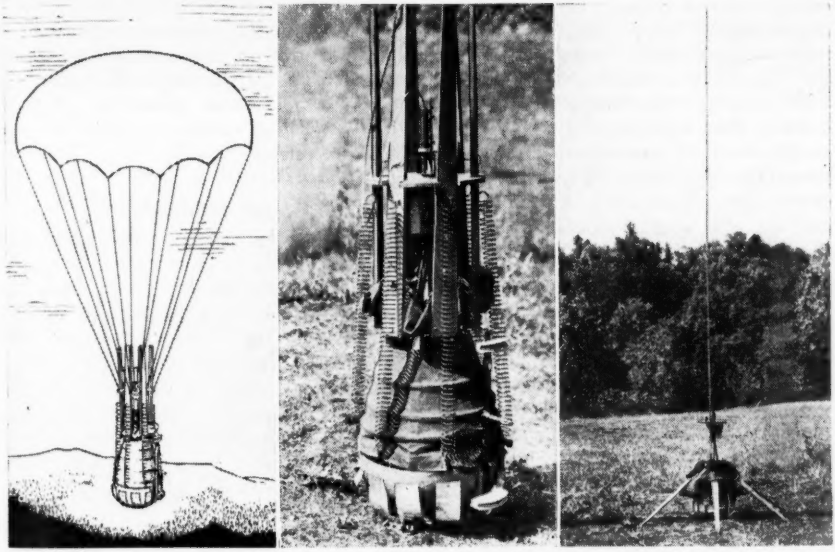
Water is pumped from fresh water sources into 3,000-gallon tanks as the initial step in the purification process. Soda ash and alum are added to induce coagulation and settlement of organic matter. Chlorine is added as a disinfectant, and activated carbon used to control odor and taste. The water then is pumped from settling tanks through a diatomite filter which takes out the remaining organic matter.—*Armed Force.*

'Memory' Device

A device that is considered probably the closest approach to an artificial brain yet achieved has been developed for the Navy.

It is a box in which are packed 32,768 man-made "nerve cells." Each in a magnetic cell a fraction of an inch in diameter. The gadget was designed to improve the "memory" of high-speed electronic computing devices. It stores numbers until the machine is ready to perform the calculations required.—News release.

Self-Erecting Weather Station



The National Bureau of Standards has developed a self-erecting weather station which can be parachuted into inaccessible territory to send out weather observations. When the station is dropped, the parachute opens automatically, and an electric clock that controls subsequent operations is turned on. Three explosions finish its conversion to an automatic weather station. An initial explosion on impact with the ground releases the parachute and prevents the equipment from being dragged along the ground. A second charge triggers a leg-release device which raises the unit to an upright operating position, and a third extends its telescoped antenna.—*Popular Mechanics Magazine.*

Landing Simulator

A device which duplicates the flight of an *F-89* is being used to simplify training of Air Force personnel in maintenance of automatic approach equipment. It consists of a platform model airplane equipped with an automatic pilot, localizer and glide path equipment, zero reader, marker beacon, remote indicating compass, and cockpit-lighting paraphernalia.

Test oscillators, controlled automatically by the position of the model, are used to broadcast actual marker beacon, localizer, and glide path indicator signals. The autopilot flight controller, operated by the instructor, is used to program approach flights involving simple maneuvers such as rolls, climbs, dives, and co-ordinated turns.

One of the unique features of the device is a position simulator, which consists of a 30-inch disk of plastic, representing a theoretical landing approach area 30 miles in diameter. As the trainer is "flown" through an approach procedure, its course is traced on the ground glass by a lighted "blip" shaped like an airplane.—*Armed Force.*

AUSTRALIA

Carrier Based Jets

Australia's Navy Minister has announced that *Sea Venom* jet fighters would be ordered for the Navy's two aircraft carriers—the *Sydney* and the *Melbourne*. The equipping of the aircraft carriers with jet fighters is part of a long-range program aimed at converting the entire Royal Australian Air Force and fleet air arm to jet aircraft.—*Australian Weekly Review.*

Labor Force

Australia's labor force of more than 2,608,000 persons is at a record level, but the shortage of workers is more acute than ever before. The Employment Service lists 126,800 vacant jobs, but when unregistered vacancies are taken into account, the total is likely to be about 250,000. In spite of the influx of 400,000 migrants who have settled in Australia since the end of the war, industry is competing keenly for all available labor.—News release.

WESTERN GERMANY

Air Board Proposed

The Allied High Commission recently opened the door for Western Germany's comeback in civil aviation. Although the Germans have not been permitted to establish their own airlines, the High Commission made a move in that direction by suggesting to the Bonn Government that a civil aviation section be established in its Ministry of Transport.—News release.

American Gifts

Americans still send 250,000 gift parcels to Germany each month. Since the war, 45 million gift parcels, valued at 390 million dollars, have been received from the United States. The peak was reached in November 1947, during Germany's severe food shortage, when 1,700,000 packages were received.—News release.

CANADA

Jet Trainer

The Canadian Government has announced that it has signed a contract authorizing the manufacture of the Lockheed *T-33* jet trainer—a development of the *F-80 Shooting Star*—in that country. —News release.

Iron and Steel Production

Canada, the eighth largest steel producing country in 1950 with an output of 3,300,000 tons, rapidly is enlarging its iron and steel producing capacity and developing its vast raw material resources.

Canadian steel companies are spending 100 million dollars on expansion and improvement programs that will increase their steel capacity to 4½ million tons and the blast furnace capacity to nearly 3½ million tons, and will add new rolling mill facilities.

Moreover, the sources of raw materials used in steel making are being developed extensively in the Dominion. Some 80 percent of the world's nickel is mined there, and the country is the chief source of that metal for the steel industry in the United States.

Canada is the world's second largest producer of zinc and of aluminum, and has the fourth largest output of copper and cobalt. The country ranks sixth as a producer of iron ore.—*The New York Times.*

Aircrew Training

An operational flying training unit to bring aircrews up to operational standards in all-weather fighter operations will get under way soon at the Royal Canadian Air Force's new base at North Bay, Ontario. The formation of this training establishment will be followed by the activation of all-weather fighter squadrons at other points, and which will be equipped with the *CF-100 Canuck* twin-engine fighter.—*Army Navy Air Force Register.*

GREAT BRITAIN

War Damage Payments

The British Government has paid out $2,800,000,000 since April 1941 to owners of property damaged in the war, according to an announcement by the War Damage Commission.

Enemy action damaged or destroyed 3,420,000 buildings in Great Britain and Northern Ireland.

More than 40 percent of the buildings were in the Greater London area.—News release.

Plastic Wing Tested

Britain is testing an airplane wing made of plastic.

The use of plastics offers the possibility of making large complex parts quickly, almost without using cutting tools. The cost of moulds and equipment is relatively small, and production costs might be below present levels.

One of the main drawbacks is that the weight of a plastic frame strong enough for fast modern planes is too great at present.—News release.

Nylon Uniforms

British soldiers soon will wear part-nylon uniforms.

The Ministry of Supply announced recently that experimental orders had been placed for uniforms made of a new nylon-wool composition cloth. If this material gives uniforms a longer life, additional orders will be placed.—News release.

Naval Fighter

Vickers-Armstrong, a British aircraft firm, recently announced that it had built the world's fastest and most powerful naval fighter—the *Supermarine 508*.

The *508* is the second new *Supermarine* jet to fly within a month (MILITARY REVIEW, Oct 1951, p. 71).

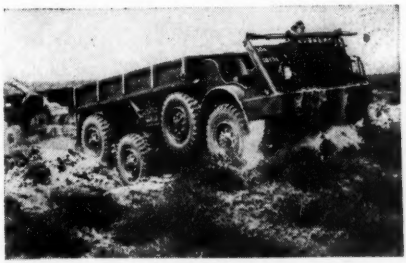
Performance data on the new plane have not been released.—News release.

THE NETHERLANDS

Artillery Tractor

A versatile, 5½-ton, six-wheel drive gun tractor has been produced for the Netherlands Army.

This vehicle, designated the YA-318, was designed primarily to carry a standard load of 11 soldiers, 1½ tons of ammunition, and a 105-mm howitzer, but can



The new YA-318 artillery tractor.

be used as an all-purpose vehicle. Fully loaded, it can travel 40 miles an hour on the road, and 15 miles an hour cross country.

One of the unusual features of the new vehicle is the construction of its winch-pintlehook, which permits the gun to be hooked or unhooked by one man. In addition, if the traction is insufficient to move both the gun and the tractor over an obstacle, the gun can be disengaged, by the driver, without the crew leaving the vehicle. The gun remains connected to the tractor by a 165-foot cable, and when the vehicle has driven over the obstacle, the winch is activated to bring the gun up and recouple it; all operations being done by the driver from his seat.

In addition, the YA-318 is equipped with two spare wheels (besides the six driving wheels), which act as supporting wheels while moving over rough terrain.

Thanks to such features, the new vehicle can bring a gun into position in terrain which heretofore was inaccessible to wheel-type artillery tractors.—News release.

MEXICO

Oil Reserves

The President of Mexico has announced that new discoveries have raised that country's known oil reserves to 1,370,000,000 barrels. In addition, he stated that 1951 production would fill Mexico's needs and provide an exportable surplus of about 2,500,000 barrels.—News release.

NORWAY

Nuclear Reactor

An atomic energy reactor, the second known to be constructed outside of the English-speaking nations and possibly the Soviet Union, has begun operations at Kjeller, near Oslo, Norway. The reactor was built jointly by the Norwegian and Netherlands Governments, and is intended for research purposes only. It is too small to turn out plutonium for an atom bomb.

The reactor, known as a pile, uses 2.8 tons of uranium metal and 6.5 tons of heavy water as a moderator to slow down the neutrons. The heavy water is supplied by Norway, while the Netherlands is supplying the uranium. Until now only the United States, Great Britain, Canada, and France were known to have nuclear reactors.—*The New York Times.*

PORTUGAL

Azores Agreement

Portugal and the United States have concluded an agreement giving the United States rights in the Azores in addition to those previously granted. The agreement also integrates the militarily strategic islands into the defense framework of the North Atlantic Treaty Organization. While the agreement provides for the use of aviation facilities in the Azores by the North Atlantic Treaty Organization as an organization, it does not provide individual Atlantic Pact member nations the rights accorded to the United States.—*The New York Times.*

DENMARK

US Helicopters

The Danish Air Force has ordered two helicopters from the United States to be used for rescue, survey, and transport purposes in Greenland.—*The Christian Science Monitor.*

BELGIUM

Development Loans

Two 25-year loans totaling 70 million dollars for the development of the Belgian Congo were announced recently by the International Bank for Reconstruction and Development.

The loans are intended to help finance a 10-year development plan for the area. Started last year, the program contemplates a total expenditure of 600 million dollars for improvements in transport, communications, electric power, and water services, as well as in native agriculture, public health, and education.—*The New York Times.*

KOREA

Low Death Rate

Three out of four United Nations' soldiers wounded in Korea—including some amputees—are returning to duty.

Improved medical treatment has cut the death rate among wounded to 2.5 percent (25 out of 1,000) compared with 4.5 percent in World War II.—News release.

Cold Weather Training Campaign

An all-out training campaign, complete with special teams, demonstration workouts, and graphic broadsides, has been launched among UN troops in Korea to drive home the lifesaving slogan to every soldier this winter that the "cold is your enemy . . . but he can be defeated."

It is believed that this campaign will be a major factor in reducing the number of trench-foot and frost-bite casualties among UN troops in Korea this winter.—*The New York Times.*

JAPAN

Facsimile Transmission of News

The facsimile system of transmitting exact copies of printed pages, written items, photographs, and charts by wire or radio will be used in Japan by a central news agency to distribute daily items to its newspaper subscribers.

The teleprinter system, in general use throughout the Western world, is not satisfactory in Japan and China because of the complicated characters used in writing. With the use of facsimile, perfect, complete copies in Eastern characters will be received by the newspapers.—*Science News Letter.*

Embassies Planned

The Japanese Foreign Ministry has announced that it intends to open 15 embassies, 16 legations, and 31 consulates throughout the world after the peace treaty is ratified.

Embassies are planned in Argentina, Belgium, Brazil, Burma, France, Great Britain, India, Indonesia, Italy, the Republic of Korea, Pakistan, the Philippines, Thailand, Turkey, and the United States.

Legations are planned in Australia, Canada, Chile, Denmark, Egypt, Iran, Mexico, the Netherlands, New Zealand, Norway, Peru, Portugal, the Union of South Africa, Spain, Sweden, and Switzerland.—News release.

COMMUNIST CHINA

Rubber Stock Pile

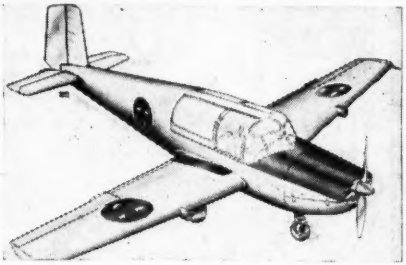
An increase in rubber exports to Communist China, during the first 6 months of this year, is believed to have enabled the Peiping regimé to build up reserve stocks in addition to meeting current requirements.

During the period, Communist China purchased 67,800 tons of rubber as compared with only 8,500 tons in the same period last year.—News release.

SWEDEN

Swedish Trainer

The Royal Swedish Air Force has placed an order for a substantial number of trainer version Saab *Safirs* (below), an



all-metal three-seater. The new version, which will carry the military designation *Sk 50*, will be powered with a 190-horsepower engine, and will have a maximum speed of 171 miles an hour.—*Canadian Aviation.*

BRAZIL

Atomic Research

Brazil soon will launch an experimental project toward harnessing the atom for industrial purposes. Plans call for the construction of a pilot plant in Minas Geraes State, which is one of Brazil's mineral storehouses, where experimentation, on a reduced scale, will be conducted.

Brazil possesses all the materials and technical elements needed for the project.—News release.

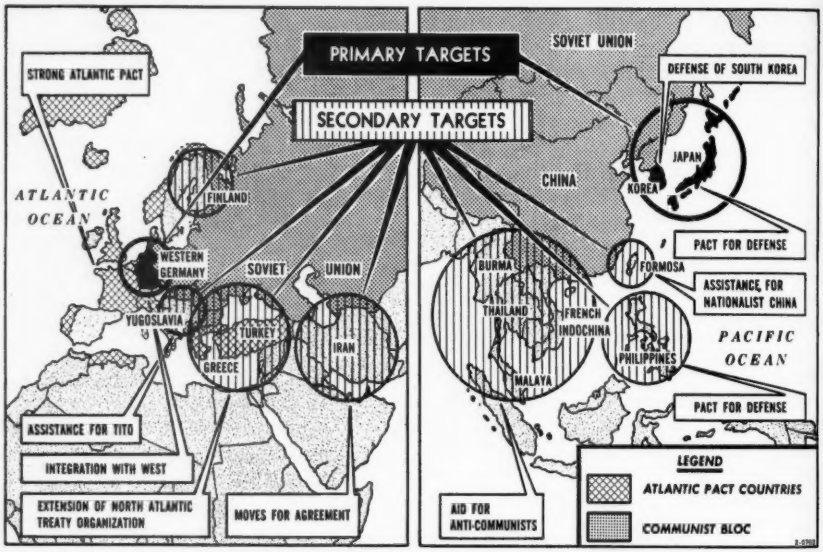
Financial Position

Brazil's Finance Minister has announced that that country's financial position is the brightest in 20 years.

He stated that 20 years ago the country owed 10 times its annual budget in foreign debts, and that interest on the debts amounted to 20 percent of the annual budget. Today, the country owes only one-fifth of its annual budget, and the interest on the debts is only 2 percent of the budget.—*The New York Times.*

USSR

Potential Soviet Targets—And the West's Strategy to Safeguard Them



FOREIGN MILITARY BRIEFS

A purchasing mission from Communist China has arrived in India to buy and ship cloth and yarn, which India recently agreed to exchange for Chinese food grains.

Norway recently received five new *F-84 Thunderjets* from the United States under the military assistance program.

The Royal Australian Air Force is forming a staff of experts to cope with the introduction of guided missiles, rockets, and other projective missiles.

A German technical mission is to visit India to see in what way German industry can assist that country.

The East German Government has announced that the Soviets have given it permission to manage all alien property in the Soviet zone of Germany.

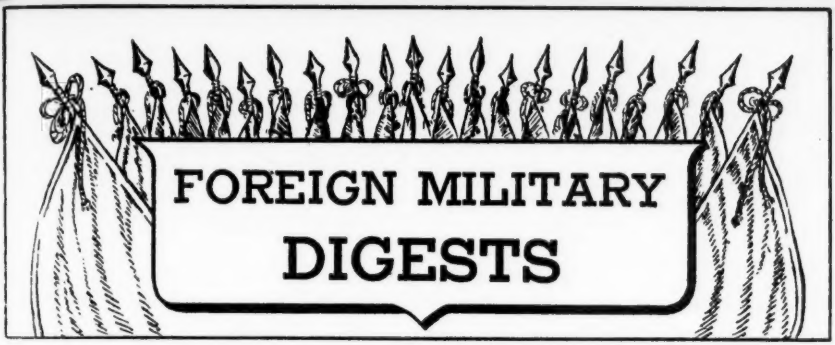
West German shipyards completed foreign orders worth $2,684,000 during the first 6 months of this year.

Guatemala and Nicaragua have resumed diplomatic relations broken off 4 years ago.

A group of Spanish Army officers soon will leave for the United States for 6 months' training in the use of modern armored and infantry weapons.

The Ethiopian Government has announced that diplomatic relations are being established with Italy for the first time since 1936.

Airline executives from 40 nations have approved a plan for a controlled network of air lanes over Europe to give fast and safe passage to the world's civil airliners.



Structure of the Soviet Air Force

Digested by the MILITARY REVIEW from an article in "Aviation Age"' (United States) July 1951.

GEORGI M. Malenkov, one-time personal secretary to Josef Stalin, is the man who runs Soviet aviation. Long a fixture in the Politburo hierarchy, he is still a relatively young, tough individual who is an avid air enthusiast. Malenkov, along with Stalin, directs the devious "internal administration" of the Communist Party. He avowedly hates America and our way of life. He has been mentioned frequently as the member most likely to succeed his close friend, the Generalissimo.

Molotov Interested

To a lesser extent, Vyacheslav M. Molotov, vice-chairman of the powerful Council of Ministers, also interests himself in aviation matters. He, too, is considered as a favorite successor-candidate for Stalin's chair. It is apparent from this topside interest why aviation influences so greatly Soviet thinking and planning. Moreover, the Peoples Commissariat for Defense also is headed by a Politburo figure, Marshal Nikolai A. Bulganin.

The Soviet Air Force itself is commanded by Chief Marshal of Aviation Pavel Zhigarev.

His Chief of Staff is General V. C. Sudets. Also on the staff level are included the Chief of Technical Services, General C. Repin, and the Inspector General of the Air Force.

Three Commands

At this point in the organization, three "independent" commands branch off into semiautonomous status:

The ADD, or Long Distance Flying Command, includes both strategic bombers and large transport aircraft. Under the over-all command of the veteran Air Marshal A. Y. Golovanov, this force includes three complete air armies with separate headquarters organizations based on Khabarovsk, Uman, and Smolensk—approximately at the center and extremities of the USSR. The ADD will be examined later in great detail.

The second independent command is the PVO, or Antiair Defense Force, which is headed by Lieutenant General Vassily Stalin, the son of the Generalissimo. This command is charged with the security of the Metropolitan (Moscow) zone and at least six other strategic areas. It operates the radar warning networks, interceptors, "frontier fighter," antiaircraft artillery, and probably guided missiles.

PVO airmen are known as the "golden falcons" and wear corresponding insignia. They form the elite Guards Regiments which are the goal of all fighter pilots, since this assignment ensures certain special privileges as well as the most difficult missions.

The AON, or Army of Special Equipment, is the third command. This force handles the Army's internal transport, including paratroops, airborne infantry, and gliders.

Eight directorates follow in the chain of command. These include Training, Technical (and its subsidiary Captured Equipment Section), Intelligence, Plans, Personnel, Navigation (which governs operational policies as well as the procurement of the conventional items such as charts, maps, and instruments), Meteorology, and Medical directorates.

Under these come the air armies. Including the ADD and AON units, there probably are 18 air armies operating at something less than full strength. Present operational strength is believed, by reliable Swiss sources, to be approximately 1,000 aircraft in each air army. A full-strength army includes 1,080 aircraft plus 216 reserves, for a total of 1,296 aircraft. The present composition of the air army is said to include 500 jet fighters, 360 light and medium bombers for "storm" operations, 100 transports, and 40 utility aircraft. Like the over-all structure of the Air Force, this army make-up indicates a good balance for either offensive or defensive operations.

The PVO defense command units are said to be operated only at division strength within their respective defense zones. Two air armies are attached to each of the six Red Army "areas."

Defense Areas

Northern Zone, based on Leningrad, encompasses territory from the Baltic to the Murman coast.

Western Zone, based on Minsk, includes the area directly behind the Iron Curtain, Eastern Germany, and Austria.

Southern Zone, based on Odessa, takes in the Balkan satellite countries.

Caucasian Zone, based on Tiflis, includes territory between the Black and Caspian Seas and the area east of the Caspian.

Turkestan Zone, based on Tashkent and Frunze, takes in the central industrial region eastward to Lake Baikal.

Far East Zone, based on Chita and Vladivostok, includes Southeast Siberia and the Mongolian region.

(Upper Siberia, from the Lena River eastward and northward to the Arctic Sea, is protected by four networks, or systems, of bases and satellite fields which are grouped along the Siberian rivers—the Anadyr, the Kolymo, the Indigirka, and the Lena. These probably are manned by PVO "frontier fighter" units.)

Air Force Not Independent

Each of these air armies is headed by a lieutenant general. The Air Force is not yet an independent air arm; and it appears that the air army will continue to support the Soviet army group and operate on the instructions of the group commander. In each air army headquarters, an officer of colonel's rank heads a department which duplicates, at this level, the functions of the eight directorates.

The air corps forms the next link in the chain of command. However, following the late wartime practice, the corps now is believed to serve mainly as an administrative unit.

The air division, which fluctuated in size and make-up during the war, according to the immediate battle situation, now is a basic operational unit. The division includes 120 aircraft plus 24 reserves for a total of 144 aircraft. It is at this level that the various types of planes are found in unit strength. There are the "frontier fighters," interceptors, "storm" aircraft for tactical support, medium bombers, reconnaissance craft, and the "special equipment" transports.

The air regiment comprises 40 aircraft plus 8 reserves, for a total of 48 planes.

The squadron, or *eskadrilla*, is made up of 10 aircraft and 2 reserves, for a

total of 12 planes. Fighter squadrons now fly in five two-ship elements, instead of the two unwieldy five-plane and three-plane flights with which they fought earlier in the war. This tactical reconnaissance came about at the insistence of the popular ace and tactician, Ivan Kozhedub.

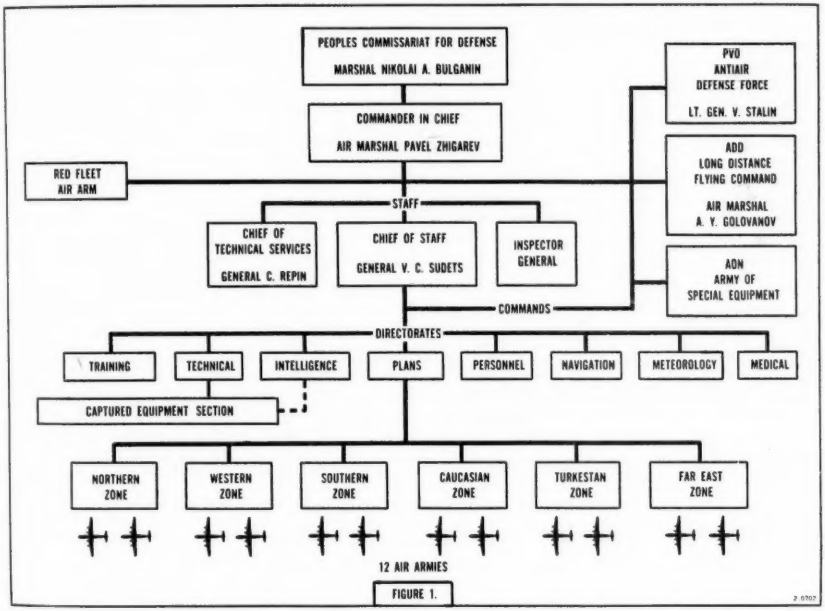


FIGURE 1.

Navy Air

Naval aviation represents less than 10 percent of the total Soviet air strength, and is under the jurisdiction of the Peoples Commissariat for the Navy. Admiral I. S. Yumashev heads the Commissariat. The regiment is the largest operational unit, and an unknown number of fighter, "storm," and patrol regiments are attached to the four Navy arms: the Far East fleet, based at Vladivostok; the Black Sea fleet; the Baltic fleet; and the Northern fleet, based at Murmansk and Archangel. It is believed that Navy fighter units are being incorporated into the semiautonomous PVO organization for the defense of vital port areas, but this cannot be verified.

For liaison between the fleet establishments, the naval air arm operates its own transport aircraft. And the Navy maintains its own schools for the training of pilots and ground personnel. Conservative estimates put naval air strength at about 2,000 craft of all types, including some jet fighters and modern torpedo bombers. The latter are reported as a slightly modified twin-jet *Il-26* type.

The first of three carriers has been completed, and this probably is a 20,000-ton vessel. Recent information has its 23,000- and 25,000-ton sister carriers well along in construction. It seems unlikely that the Soviet Navy will develop specific types of shipboard aircraft at this time, but will probably modify several existing, tried models for carrier operations.

Several sources report the fitting of four new Union Class battleships for the launching of guided missiles as large as the *V-2*. These vessels are the *Sojus*, *Strana Sovietov*, *Belo Russia*, and the *Sovietski*, all based in Arctic waters, probably at Murmansk. That such ships might be capable of launching missiles is suggested by signal success with submarine-launched missiles.

Since 1949, rumors have persisted that the ADD bomber command had been transferred to the jurisdiction of the Navy. Our informants say this is false and illogical. What has happened is that Chief Air Marshal Zhigarev has been given command of all Navy air.

Lacking in this organizational structure are the departments which function in the United States air arms as management agencies. The Soviet Air Force and its small Navy counterpart apparently function without a comptroller or statistical control setup by following the simple scheme used during the war by the *Luftwaffe*. The commanders simply radio or telephone to ask for squadron or regiment status reports when they wish to determine the availability of aircraft or other matériel.

Personnel

Thus far, only the statistical organization has been considered. What of the men—and a few women—who bring life to these various "units"?

One of the best analyses came, in 1944, from an American correspondent who said:

> The vast majority of the fliers are of peasant stock, straight from the soil. They fly with confidence and nerve. They seem mostly older and bulkier than U. S. pilots, and they show little youthful exuberance. By training and indoctrination, they are serious minded men with a serious job to do. They are not reckless in the sense of deliberately courting danger, but they are not surrounded by so many safety regulations as U. S. airmen. Their attitude is, in effect, that danger is something to be avoided, but not if you are in a hurry or preoccupied by something else . . . they fly their planes like the Cossacks ride their horses, and they seem to be able to fly any number of missions without visible fatigue.
>
> Few of them ever hear of such fancy fliers' ailments as "aeroneurosis" . . . Novikov (then commander is a guileless man who is annoyed by guile in others. He likes to lay his cards on the table, so far as the strictures of Soviet policy permit . . . he likes parties and people, like other Red bigwigs. He takes his blonde wife out whenever he has the time, and drinks vodka *do dna*, at a gulp. He spends as much time as he can reading his large technical library on air warfare.

Military Thought Control

Undaunted though he may be by adversaries in the air, the Soviet "falcon" must cope with annoyances on the ground. Not the least of these is *Smersh*, (pronounced) *Smairsh*). The MVD is widely known and feared as the Ministry of Interior Affairs. However, its thought-control activities and spying are applied mainly to the civil populace. Military and industrial policing is carried out by this subsidiary organization, *Smersh*. Its omnipresent police are found at all levels of command down to the squadrons. These agents even draw their pay from sources other than the base personnel people. Singularly enough, this very fact often reveals to the squadron members the identity of the "secret" operative in their midst. Needless to say, the *Smersh* representative is the most unpopular and lonely guy on any given base.

The political officer—contrary to the popular impression—usually is one of the best-liked men in any given unit. At squadron level, he is a combination father-confessor, money-lender, and all-round good fellow who can get the personnel transportation, passes, or other favors. And if the *Smersh* operative turns out to be too nasty a villian, the political officer can take the case upstairs through Party channels and have the offender removed on the grounds of morale.

Fateful Office

While the high command remains sensitive to the moods of its operational units, history reveals that the command itself is a rather fateful office. The first Air Force commander during the civil war, Arkadi Rosengolz, fell victim to the 1937

purge. So did the then present chieftain, Alksnis. So, later on, did their successors, Loktionov and Lychagov.

Yakov V. Smushkevich led his force heroically when the *Luftwaffe* struck, and for several months thereafter. He was replaced summarily, in 1942, by his Chief of Staff (plans), Alexander Novikov.

Despite Novikov's successful switch to the offensive, and his eventual defeat of the *Luftwaffe* in the East, he, too, fell from grace and—probably at Malenkov's dictum—was replaced suddenly in 1946 by Konstantin A. Vershinin.

Appropriated German Matériel

Vershinin rebuilt the Air Force to its present state by appropriating considerable German property and matériel. However, one particular item among the spoils of war is said to have led to his downfall. Vershinin liked Göring's villa so much that he had it dismantled and shipped to the USSR for his own occupancy. Just how this taste for luxurious living got him in bad is not known, but he was ousted last year and succeeded by an unfamiliar (to the Western world) officer named Pavel Zhigarev.

The new Chief Marshal of Aviation was promoted, presumably, over the heads of known officers on Vershinin's staff, such as Nikitin, Repin, Grendal, and Perminov; and able air commanders in the field such as Kozhedub, Schegelev, Golovanov, Tupikov, Podgorny, Tolstikov, Schloschenko, or Khrukin.

It would seem that the general officers just accept liquidation as a sort of operational risk, like engine failure.

War a Foregone Conclusion

However, the important consideration is that the Soviet airman has been indoctrinated since 1946 *to consider war with the United States and certain of our potential allies as a foregone conclusion*—not a possibility. It is known, moreover, that while the Kremlin was pointing to "demobilization" and talking "peace," the airmen and ground personnel alike were reinducted secretly in 1946 and 1947.

Since then, the strategy, tactics, and

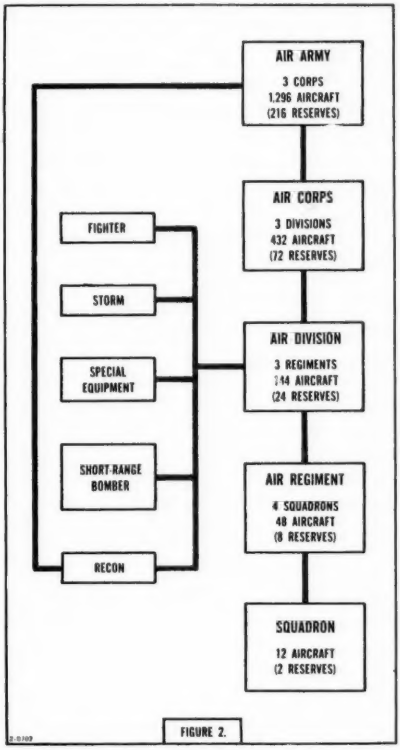


FIGURE 2.

thinking have been based upon contingencies which he has been told are likely to develop during any such conflict. He thoroughly respects the United States Air Force, our pilots, and our airplanes. He is, therefore, completely aware of the supreme task he would face in combat. The typical pilot believes completely in the righteousness of his cause. He will prove to be a formidable adversary from squadron level all the way up the line.

Balanced Forces for the West

Digested by the MILITARY REVIEW from an article by Major W. G. F. Jackson in the "Journal of the Royal United Service Institution" (Great Britain) May 1951.

"The smaller our forces become the more difficult it is to maintain their proper balance. Would it, therefore, be better to aim at balance within the total forces maintained by ourselves and our allies, accepting, if necessary, a lack of balance within our own forces?"

This is the first of a series of two articles on this subject. The second article in this series will appear in the January 1952 issue.—The Editor.

IN THE past, the United Kingdom has been careful of entrusting her vital interests to the chances of international politics. History and our natural instinct for independence have taught us to beware of relying too steadfastly on allies, however faithful they may appear at the moment. Our position as a world power has been maintained, in the last resort, by the strength and quality of our own balanced forces. The changes now facing the free world are such that no Western power can follow this policy any longer. Our limited resources, the possibility of losing the cold war through overburdening our economy with heavy defense expenditures, and the certainty of losing a shooting war if we do not combine effectively with our allies already have compelled us to go a long way toward surrendering the traditional balance of our forces.

The purpose of this article is to review the reasons for the drift from our traditional policy toward a policy of collective balance; to consider the factors that limit the extent to which collective balance is either desirable or possible; and, finally, to apply the general principles thus evolved to the forces of the United Kingdom to show what they may mean in practice.

Need for Collective Balance

If we look back over the last 150 years, it may seem strange that we should consider abandoning a policy which has served us so well. During that time, three serious attempts have been made by a single power to achieve world domination. Napoleon, Imperial Germany, and then Nazi Germany were all defeated by *grand alliances*. In those wars, each ally provided a balanced contingent. Though supreme commands were established in the two world wars, it was not found necessary to attempt collective balance. Why, then, has collective balance now become desirable?

Reasons for Collective Balance

There are three reasons for this change. The first is economy. The expense of modern equipment has become so great that few nations, if any, can afford balanced forces. The cold war tactics of world communism, led by Soviet Russia, aim to profit from poverty and low standards of living. One of the best ways of discrediting such methods is to raise the standard of life in all non-Communist countries. This can be done only if the weight of defense expenditures is kept as low as possible. A policy of collective balance helps to achieve this economy. Second, unless the load of defending the free world is distributed evenly among all the allies, the countries nearest the Iron Curtain may decide that the odds against them are too great, and that communism is better than destruction. Third, accepting collective balance appears to be the only way in which the Western world can match the integrated forces of the Soviet and her satellites.

Economy

By accepting collective balance, the

free nations are enabled to pool their resources, reduce their overheads, and adopt the principle of "the best man for the job." This may not always be in accord with the history or traditions of individual nations. For instance, the Dutch, by tradition, are a seafaring nation and have always spent far more on their navy than on their army. However, if Western Europe is to be defended, nations bordering the Iron Curtain should put the largest possible ground forces into the field as soon as war starts. Dutch sea communications with her overseas possession can be left safely to the protection of the American and British navies. Every man that Holland does not need for internal security in her overseas territories should face East on land. Similarly, we, in the United Kingdom, are proud of the efforts of the Bomber Command, and are firm believers in strategic bombing. The defense of Western Europe, however, demands that fighter defenses and tactical air forces must be ready to meet the initial air and land assault. We might well leave strategic bombing to the United States, who is not immediately threatened by land or short-range air attack.

Sharing the Load

The problem of equalizing the load between the free nations is best illustrated by a short analogy. A blast furnace consists of a steel outer casing with a heat resisting inner lining of firebrick. The firebrick alone has no strength, and the steel casing by itself would melt. Yet, together, they can contain the great heat and pressure within the furnace.

The world can be divided into similar casings or rings surrounding the Soviet Union and her satellites. The inner ring contains the countries bordering the Iron Curtain—Western Europe including Great Britain, Italy, Greece, Turkey, Iran, Southeast Asia, and Japan. The outer ring contains the Americas, Africa, Pakistan, India, Australia, and New Zealand and possesses comparative security from attack. Pakistan and India have been included in the outer ring because they possess the security afforded by the Himalayas. In the early stages of a war, the outer ring countries are unlikely to be attacked on land, and they possess ample depth for early warning of air attack. If the inner ring is to bear the brunt of destruction and devastation, its people must be certain that the outer ring will play its part at once and not several years later. The outer ring must be firmly committed from the start, and must make great efforts to provide men and equipment to balance the losses which the inner ring must suffer. The acceptance of collective balance is a major step toward giving the inner ring the confidence it needs, not only in an ultimate allied victory, but also in immediate support if war breaks out.

Military Strength

Though the forces of the Soviet Union and her satellites appear overwhelming, the total resources of the West compared with those of the East show a very favorable balance (see chart on page 81).

The resources of the East, however, are welded into one homogeneous machine, whereas those of the West still are scattered and devoted to narrow national interests. If the great resources of the West are to be effective, they must be organized properly. We must make the best use of our potential and, in particular, of the secure centers of production of the outer ring. Collective balance offers one of the best ways of achieving the cohesion needed.

Summary

To sum up, a degree of collective balance is essential in order that:

1. The free world can avoid defeat in the cold war by keeping its standard of living high, without prejudicing its

chances of survival in a shooting war.

2. The inner ring countries, particularly in Western Europe, can be given confidence not only in ultimate allied victory, but also in immediate help from the outer ring.

3. The scattered resources of the West can be combined effectively to match the integrated forces of the East.

Limits of Collective Balance

There are four major disadvantages to collective balance. History casts doubt upon the reliability of alliances in long-term planning. The sovereignty of individual states must be infringed. Secure sea communications and sufficient merchant shipping are essential for any workable scheme of collective balance, but our sea lanes have been in jeopardy in both world wars. Finally, there is the difficulty of making the large organization required work efficiently. We must study these disadvantages, in turn, to determine the reservations needed to make the policy of collective balance both workable and acceptable to individual governments.

History

From the historical point of view, there are a number of reasons for distrusting alliances in long-term planning. Probably the most important are the effects of the policy of balance of power and the natural rise and decline of great nations. Both have been responsible for the continual regrouping in international politics, and the instability of alliances. We need not go back far in history to find examples. During the Napoleonic wars, few people would have believed that one day we would be the ally of France and the enemy of Germany. More recently, few people in the 1930s could have guessed that, by 1939, Nazi Germany was to become the ally of Communist Russia, though there was less surprise when the position was reversed in 1941.

The misfortunes of war have had an equally disastrous effect on long-term allied plans. In 1939, we depended on the French forces in many parts of the world, but, by 1941, we had lost their assistance. There is a risk of similar reverses in the future, because any aggressor, faced by a *grand alliance*, will attempt to defeat the allies in detail.

Alliances always possess the seeds of their own disruption. In free countries, ruled by parliamentary governments, war rarely is declared unless the country's vital interests are at stake. If an aggressor chooses the issues skillfully, it is often possible to prevent some members of an alliance from entering the conflict. In 1914, Germany just failed to prevent Great Britain from entering the European struggle, but, in 1938, Hitler succeeded at Munich. Today, there are the seeds of disagreement among the Western powers. Divergent policies in the Far East and differences over Germany still may be skillfully used by the Soviet Union.

Have there been any changes in international relations which might upset the lessons of recent history? The natural rise and decline of great powers is bound to continue; misfortunes of war still will deprive us of allies upon whom we have depended; clashes of vital interests still will occur; but are power politics, based on a balance of power, still the mainspring of international relations? In the present East-West conflict, religion, not balance of power, is the driving force. The religion of communism is attempting to convert the world by force. The world has drifted back through the centuries, in which the balance of power held sway, to the days of the Wars of Religion of the fifteenth and sixteenth centuries. The position today shows many striking similarities to the wars waged by the Catholic countries against the rising power of the Protestants, and the wars waged to stop the Moslem advance over Europe. Reli-

gion, rather than the balance of power, was the driving force in those wars. Today, the free world faces the aggressive religion of communism. All the bitterness, cruelty, and uncompromising faith in a creed, which were characteristic of the Wars of Religion, are present again today.

During the Wars of Religion, very few states changed sides voluntarily. There were many forcible conversions, but, as nations were welded together by religious ties, alliances were more stable. Today, we should be able to place greater faith in the countries who possess the same beliefs as ourselves. However, it is difficult to tell which countries are firmly anti-Communist. In deciding this, we should bear two factors in mind. First, if a country is close to the Iron Curtain, it may be converted forcibly before help can reach it. Second, a country may fall to internal attacks if it contains well-developed Communist cells and is fertile ground for Communist expansion because of low standards of living. We should avoid accepting collective balance with any country falling within these categories.

If these conditions were accepted rigidly, most of the inner ring would be debarred from any system of collective balance, because most of its countries are vulnerable to forcible conversion. Since one of the reasons for collective balance is the physical and moral strengthening of the inner ring, we cannot accept such a restriction *in toto*. The vulnerability of these countries, however, must be borne in mind so that the loss of any one of them does not throw the forces of the free world out of balance. It should be possible for the inner ring to rely firmly on the outer ring, but the outer ring should not depend on the inner ring to the same degree. For instance, the inner ring might concentrate on the preparation for the initial defensive phase of a war, foregoing units and equipment required for the offensive phase, while the outer ring might retain complete balance and develop the resources required for the build-up and offensive phases.

COMPARISON OF RESOURCES OF THE EAST AND WEST

	POPULATION (MILLIONS)	STEEL PRODUCTION (MILLIONS OF TONS)	COAL PRODUCTION (MILLIONS OF TONS)	ELECTRIC POWER (BILLIONS OF KILOWATT HOURS)
ATLANTIC POWERS	340	110	790	470
SOVIET BLOC (EXCLUDING COMMUNIST CHINA)	270	30	400	100

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Thus, the first reservation, which we must make to the acceptance of collective balance, is that the degree of vulnerability of each country, either to forcible conversion to communism or internal Communist disruption, must be taken into account, so that its loss will not upset the balance of the rest of our forces.

Sovereignty

Infringement of sovereignty probably is the greatest stumbling block to be overcome in making collective balance acceptable to individual governments. Some countries will have to accept the presence of foreign soldiers in their territory during peacetime. All governments will lose some degree of control of their own armed forces. In addition, each nation has defense commitments of its own which are not connected with the general East-West conflict.

The presence of foreign troops in a country need not present any insurmount-

able difficulty, and already has been accepted in the case of the United States Air Force in the United Kingdom. However, the problems of control of a nation's armed forces and its outside commitments are not so easy to solve. If a country's vital interests are endangered, its government will be forced to use all its resources to protect those interests even though it may not be in the common good to do so. A threat to a country's vital interests may well influence its decisions more than any agreement on collective balance. In 1940, we could not strip the fighter defenses of Great Britain below a certain level to provide fighters for France. In 1942, we could not provide adequate forces in time to defend Malaya, because the security of Great Britain and the Middle East was threatened. In America, there was the strong school of thought that Japan was America's first enemy, though the interests of her principal ally, Great Britain, demanded the defeat of Germany first. Today, the United Kingdom and the United States consider the rearmament of Western Germany essential, but France considers the rebirth of the German Army a threat to her security. Apart from the idealists' dream of an effective political union of the free world, there appears to be no way of avoiding such clashes of interest. Any scheme of collective balance must respect the vital interests of individual governments. If it does not, very few governments could accept the principle. Even if they were persuaded to do so, they would be unable to carry out their commitments once their security was threatened.

Besides their vital interests, most of the Western powers posses other defense commitments which are important, though not vital, to them. They must consider their moral obligations to the peoples of their colonies and protectorates, and also the protection of their commercial interests all over the world. Though Great Britain may wish to concentrate her forces for the defense of Western Europe, she cannot abandon her commitments, say, in Malaya. Much as she might like to take the attractive course of handing over her responsibilities in Southeast Asia to Australia, she must consider the wishes of the people of Malaya. Even if Australia were willing and able to undertake this task, it is doubtful whether the Malayans would accept the transfer of power. Until Malaya achieves dominion status, the United Kingdom must continue to maintain the security of Malaya. Should Malaya once more become a theater of war, its protection may require forces from elsewhere in the free world, but the command of these forces and the internal security of the country must remain in the hands of the United Kingdom. The conflict in Korea affords a similiar example. The prestige of the United States would have been fatally weakened in the Far East if she had allowed South Korea to be absorbed by North Korea unopposed. Korea, as a piece of territory, was not vital to the defense of the United States, but it was the symbol of her determination to meet her moral obligations.

Thus, to ensure that collective balance is acceptable to individual governments, each country's vital interests and moral obligations must be respected. The second reservation which we must make is that individual countries must be allowed to retain national balance in forces needed to *defend* their vital interests and to meet their moral obligations. The word *defend* has been italicized because, unless applied strictly, this reservation would kill collective balance and bring us back quickly to national balance.

Sea Communications

Any scheme of collective balance must depend for its success on our ability to ship units, equipment, and supplies from the outer to the inner ring. Unfortunately, our shipping is menaced by new types of

submarines, and our ports are within range of Soviet air attacks. Past experience also shows that a shortage of merchant shipping in wartime is likely to be a major factor in the strategic plans of the West.

During the build-up and offensive phases of a war, we must assume that we can establish a degree of security at sea which will enable us to ship the vast tonnages required for modern offensive operations. If we do not succeed in establishing this phase, however, we must assume an adverse shipping situation. We must do everything possible to reduce our bids on merchant tonnage. The inner ring would be unwise to rely on obtaining from the outer ring the equipment and supplies needed in large quantities during the early defensive battles. Stock-piling equipment, stationing outer ring forces in Europe before war starts, and the use of air transport will help, but none of these expedients can do more than make a useful contribution to the problem. The inner ring must be made as nearly self-sufficient as possible for the defensive phase. This might be assisted by grouping together the inner ring countries not separated by long sea communications. The forces within each group should be balanced for the defensive phase and, at first, would rely only on help which could be provided from the outer ring before war starts.

The vulnerability of our sea communications is only one factor in the larger problem of organization, grouping, and command which will be considered next. At this stage, the third reservation need only state that account must be taken of the vulnerability of our sea communications and shortage of merchant shipping during the defensive phase.

Organization and Command

The final and probably most difficult problem is to produce an organization which can control such an array of powers, and yet not become so cumbersome that it is incapable of quick and effective decision. During the last war, great strides were made in the technique of co-ordinating allied forces, but this was done under the stress of actual war. It was possible to set up supreme commands in each theater, and the number of nations involved was small because only the Commonwealth and the United States had any large forces operating together. We now have to create an organization under almost peacetime conditions to control a minimum of 19 different governments, the Atlantic powers and the British Commonwealth.

Assigning the Tasks

If collective balance between so many sovereign states is to succeed, there must be some decentralization to produce a workable chain of command. Responsibilities must be as simple and clear cut as possible. It would be no use attempting collective balance between countries so far apart and possessing such different interests as, say, Iceland and Australia. It would be equally futile to expect one or two countries to produce and man, say, all the tanks. Command of land formations would be impossible if all divisions contained several nationalities. On the other hand, there are certain types of specialized warfare such as strategic bombing or arctic warfare which could be assigned to one or two countries only. What, then, should be the basis for decentralization?

The first clear-cut division which might be used is the difference between those countries bordering the Iron Curtain that should concentrate on stemming the initial onslaught, and those of the outer ring that can carry out their preparations in comparative security. Inner ring countries might be responsible only for the preparation for the defensive phase. All their energies should be bent toward the problem of absorbing the first shock of

the Soviet attack. All preparations and research for the build-up and offensive phases might be the responsibility of the outer ring. This does not mean, however, that the forces of the outer ring would not take part in the initial battles. Their help would be essential, but limited to what they could provide before war starts, and to what they could move to the battle area in the face of enemy submarine and air attacks.

Collective Security Zones

Leading from this, the various countries of the outer ring form natural main support areas for sectors of the inner ring. The free world might be divided into collective security zones, each containing inner ring countries responsible for absorbing the initial attacks, and outer ring countries constituting the main support area for the zone. These zones might be a:

1. *North Atlantic Zone* covering the present North Atlantic Treaty countries.

2. *Middle East Zone* comprising the Eastern Mediterranean and Persian Gulf areas as the inner ring with Africa, Pakistan, and India as its main support areas.

3. *Far Eastern Zone* covering Southeast Asia and the Pacific, with the United States, Canada, Australia, New Zealand, and India as its main support areas.

This grouping brings together countries with similar interests and problems, and should make control more practical than world-wide collective balance.

The Problem of International Command

The next problem is to decide the lowest level at which a force can be international. Can individual ships of a fleet contain different nationalities? Can we accept different nationalities within the corps, divisions, or brigades of an army, or within the groups, wings, or squadrons of an air force? The limiting factor seems to be control. At whatever level international command occurs, decisions will be slower and more difficult to make. In tactical formations, decisions must be quick and effective. We should, therefore, try to avoid collective balance within tactical formations; that is to say, divisions in the navy and army, and groups in the air force, should consist of one nationality only. In the case of the small nations and "free" contingents from satellite countries, we, naturally, must make exceptions to this rule. As far as equipment is concerned, there need be no such restriction, though equipment should be standardized as far as possible within each collective security zone.

As far as specialized operations are concerned, there is no reason why these should not be concentrated in the hands of those countries best suited to them. Strategic bombing is not closely linked with the tactical land or sea battle. Only those countries which have the industrial potential to sustain a strategic bomber force should attempt to do so. Arctic warfare might be left in the hands of Canada and the Scandinavian countries. Jungle warfare might best be left to India, Australia, and New Zealand, and so on.

Summary

To summarize, then, the policy of collective balance, however desirable in theory, always must be limited in scope by the following factors:

1. Each country must be allowed to retain the forces it needs to defend its vital interests and to meet its moral obligations.

2. The vulnerability of countries to internal disruption or forcible conversion to communism must be taken into account.

3. The command organization evolved must be capable of quick and effective decision.

4. Dependence on long sea communications during the defensive phase must be kept to a minimum.

How To Win The Battle?

Translated and digested by the MILITARY REVIEW from an article in "L'Armee la Nation" (Belgium) 1 June 1951.

WE HAVE been told that "victory belongs to the large battalions." Nevertheless, I recall that Bonaparte's greatest victories were obtained with small armies—armies that did not even possess numerical equality. In fact, the career of the Emperor Napoleon began and ended with tactical victories against an enemy who was numerically superior.

Other modern military chiefs such as Sir John Moore and Wellington in Spain, or "Stonewall" Jackson during the War of Secession in the United States, have shown that skill and mobility are able to make up for numerical inferiority.

Organizing for Defense

The Western Europeans, who are the allies of the United States, should raise armies sufficiently strong, numerically, to remove the temptation of an eventual aggressor to overrun Europe and Asia. However, we should not be unmindful of the fact that "large battalions" normally will not be ours, and that the populations of Communist Asia will be able to furnish more manpower than all the Western European nations put together.

Our populations, moreover, occupy a material and intellectual level which makes them hostile to the idea of mass holocausts.

Our soldiers would fight, unquestionably, if necessary, to defend liberty, Christian civilization, and honor, but they would fight well only if success is possible.

Essentials for Victory

We can win battles, and civilians as well as the military must be made to realize that fact. However, in order to be able to do it, four things are necessary: morale, weapons, training, and tactical doctrine.

Morale

Morale is the most indispensable quality of an army, and it is the most difficult to create through artificial means. The soldier of our civilized countries is bound to the civilian population by a thousand ties. There exists between him and the workers, the peasants, and the intellectuals of the rear a constant exchange of impressions and ideas.

When a country believes that a war is just, when a country desires victory whatever the cost, when a country works honestly and conscientiously, the soldier fights confidently. However, if the country trembles, if it prefers shame, defeat, and oppression to the horrors of bombardment, if the speculators control the course of events, and the workers labor without heart, the soldier perhaps will fight well as long as victory smiles on him, but he would need a great deal of courage to resist defeat, retreat, or even a war of attrition.

That is why the greatest war chiefs were men who knew how to give clear orders to their armies and to strengthen the morale of the rear.

Today, Belgium is asking her sons to sacrifice 2 years of their youth in the defense of their country. In order that this sacrifice may not be too heavy or ineffective, the entire country must support them. Suppressing all personal interests, the Belgians should support the military policy of their country. Laying aside their legitimate material interests, the fathers should work an additional year to make up for the income of the absent son, and the mothers, hiding their

grief, should give their sons to the Army in order that the country may not suffer a new invasion.

Europe is in danger. It is as greatly threatened as when the hordes of Attila set out to overrun it. To prevent catastrophe, we must possess and display a courage that will discourage the potential enemy.

Weapons

Without adequate armament, morale can be only transitory. Leonidas, himself, would not have sacrificed his life if he had not had a helmet, a sword, and a shield.

The morale of the Western people will depend, in a large measure, on the weapons which industry is able to furnish them. We need simple, strong, and highly effective weapons for the infantry. These should include numerous mortars, antitank weapons, and, if possible, weapons of great morale effect, such as napalm bombs and powerful flame throwers.

We need a large number of tanks that are highly maneuverable and well armed. We need powerful guns. We need a great many of them for it is better to stop the enemy with shells than through the hand-to-hand combat of the infantry. We need efficient transportation and less complex radio sets.

In addition to all of these items, we must have planes, especially fighters, for without them the Army could neither move nor supply itself.

All of this will cost a great deal; but to be overrun and occupied would cost still more. And to be massacred for want of suitable weapons is tragic.

The industrial power of the Western nations should permit us to arm our men well and give them the confidence which comes from technical superiority. With America aiding us, this is possible.

Training

Modern armament is complicated; one does not learn how to handle the latest weapons of war in just a matter of weeks. It is costly and wasteful to place them, in time of war, in inexperienced hands.

To train an army realistically requires gasoline, ammunition, weapons, and the courage to use them.

We all know how terrible it is to have a man killed in a training exercise, but, too often, that causes us to forget that if actual fire is not used in peacetime, the losses of the first days of war will be a hundred times greater.

Is it possible to give an antitank gun to an infantryman and then argue over the firing of a few rounds of ammunition? Does anyone think that a man who has fired but a few rounds of exercise ammunition will be able to score an effective hit against a fast moving tank in combat?

Why pay enormous sums of money for mortars and guns if the gun crews, the observers, and the commanders do not have the practice which permits them to fire accurately and fast? Why have motorized divisions if the gasoline allotted is sufficient for only a few training exercises?

If the situation is serious enough for Parliament to vote the 2 years of service, the Army should regard itself as on the eve of a major operation.

Training should be conducted as it was in Great Britain, from 1941 to 1944, with a definite aim in mind, so that our inexperienced formations will fight like veterans, as the units recruited in Britain did during the Normandy invasion.

Tactical Doctrine

To train an army, a doctrine is needed. For a coalition to be able to withstand the first onslaught, it is necessary that this doctrine be a common one and that it be translated by regulations which are similar, if not identical.

Allied armies fight side by side without too many differences as long as victory smiles on them, but, if they have

not been welded together by long cooperation, their bonds are broken at the first failure. In such a situation, they attempt to throw off the responsibility for the defeat, and, instead of making every possible effort to transform it into a victory, they withdraw over divergent axes, leaving the way open to the enemy.

Since the setbacks of 1940, the doctrine of all the armies has been clearly offensive. The word *offensive* has been regarded as a sacred word, for this concept alone permits the winning of battles.

Offensive action has been a vertiable fetish, but we have forgotten that it is possible only if our weapons are well forged, well tempered, and well disciplined. However, in 1940, the weapons for offensive action were not in existence, and it is only now, with armies recreated, that we can consider seriously the problem of their utilization.

Passive defense appears condemned. The purely defensive attitude also is condemned. No army instructs its troops along purely defensive lines. An aggressive attitude, quick reaction to every effort on the part of the enemy, and flexibility in the disposition of forces are recognized as absolutely necessary.

We need, therefore, an offensive doctrine, one proportioned to our means.

Against limitless armies, which have no regard for life, the gain or loss of terrain is unimportant. Rivers, whether they be the Han or the Elbe, do not halt the enemy. They hardly slow down his movements.

Our major objective is the army of the enemy, and this army has two weak spots: gasoline and ammunition supplies and morale.

Attacking the Weak Spots

With well armed and trained air and ground forces, we will be in a position to attack both of these weak spots.

Why defend a river when an attack can be made 60 miles into the enemy's rear area, when his rear area can be crippled by the actions of our air forces? Why defend a line, which is neither solid nor elastic, when an attack can be made against enemy columns?

There must be observation elements in contact with the enemy, which are well armed, highly mobile, vigilant, aggressive, and which follow him, slow his pace, and continually harass him. However, behind these observation elements there must be armies well suited for offensive action, which, by selecting a fractional part of the enemy's forces, can attack it and annihilate it. These armies will be the elite troops of our forces. Endowed with great fire power, covered by technically superior air forces, they must, by concentrating themselves in back of the curtain provided by the observation forces, mass forces larger than the enemy in selected sectors for engaging in offensive action.

Finally, since Europe has limited space, and vital industries are relatively accessible to the enemy, one or several redoubts are necessary from which the mobile forces may draw their supplies and where, if they are forced to withdraw, they may await the intervention of allies from overseas.

Summary

Parliament is going to give us the men necessary for a permanent covering force. Matériel is arriving from our factories, the United Kingdom, Canada, and the United States. General Eisenhower has come to us to co-ordinate our efforts and strengthen our will to defend the countries which he liberated in 1945. Never has an army been the object of so much care; never has its task been so vital. It must not betray the confidence the countries have placed in it.

It is the duty of the soldier, through his faith, his intelligence, and his devotion, to give Europe security in peace, or victory in war.

Re-equipping the Royal Air Force

A Survey of Present Trends

Digested by the MILITARY REVIEW from an article by 'Roundel' in "The Royal Air Force Quarterly" (Great Britain) July 1951.

NO STUDENT of air power, studying the equipment of the Royal Air Force in recent years, could fail to be aware of its defects in many important fields. The provision of jet fighters for home based defense squadrons was, admittedly, fairly rapid from 1946 onward, but the position has been less satisfactory in the auxiliary squadrons and in the overseas fighter squadrons. It was only recently that the Far East Air Force replaced its *Spitfires* and *Tempests* with *Vampires*, and the auxiliary fighter squadrons will not be completely re-equipped with jets until the latter part of this year. Equally serious has been the lack of a jet night fighter.

Perhaps the most alarming aspect, however, has been the neglect of the Bomber Command and the Coastal Command. Both of these commands have been allowed to dwindle to a fraction of their peak wartime strength, and have continued to fly aircraft which, though excellent in their day, fall seriously short of the performance demanded by the conditions of modern air warfare.

Happily, though not a moment too soon, the outlook now is beginning to improve, and future historians may well compare 1951 with 1936 in its significance as regards the fortunes of the Royal Air Force. The parallel is indeed striking. Then, as now, a new generation of aircraft was coming forward—the *Hurricanes, Spitfires, Blenheims*, and *Wellingtons*. Plans were being finalized for the four-engine heavy bombers, the *Halifax* and *Stirling*, just as today the first four-engine jet bombers are being forged. Then, as now, the delay in "freezing" types for production, whether intentional, as has been hinted in the Air Estimates, or as a result of circumstances, is likely to pay dividends in any future conflict. Its net result is to keep the delaying country always one jump ahead of the country which has "frozen" its designs too soon. Despite its initial superiority, the country which is first in the field with the exploitation of any new development in aircraft design always is outclassed eventually by the aircraft which have the advantage of 2 or 3 years' more development before being put into squadrons. The mistake of the *Luftwaffe* chiefs in "freezing" their key types too soon, to see them outclassed in actual warfare, is the classical example.

With these considerations in mind, perhaps there is less reason for alarm at the reports of the performances of Soviet jet fighters in Korea, and the possession of large numbers of jet bombers by the Soviet Air Force. For to pursue the historical parallel a stage further, did we not hear similar reports of the ascendancy of the *Me 109* and the *Do 17* in the testing ground of the Spanish Civil War?

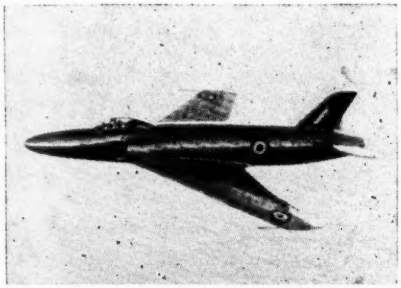
So much for the long-term aspect. Now, let us turn to the re-equipment position at the present time.

Jet Fighters

Since early in 1951, the first-line day interceptor fighter squadrons of the Fighter Command have been equipped with the Gloster *Meteor 8*. This plane is a development of the *Meteor 4*, which has been the standard fighter since 1946-47. Retaining the *Derwent* engines and the four 20-mm cannon of its predecessor, the *Meteor 8* scarcely can be said to

represent any startling advance over the *Meteor 4*. It is likely to remain our standard day interceptor fighter for some time to come. In the meantime, there is a possibility that it will be supplemented by *F-86 Sabre* jet fighters from the United States.

Jet fighter-bomber squadrons of the Royal Air Force, now flying *Vampires*, soon are to be re-equipped with *Venoms*.



The Vickers *Supermarine 535;* typical of the latest generation of jet fighters.

Though superficially similar to the *Vampire*, the *Venom* is a much more advanced design with the more powerful *Ghost* engine in place of the *Goblin*, and a new high-speed wing section. Finned wing tanks conform to the latest aerodynamic fashions. The *Venom* promises to be one of the most formidable close-support, rocket-firing jet aircraft, and will be a welcome addition to Royal Air Force squadrons at home and overseas.

All-Weather Jet Fighters

The modern conception of an "all-weather" jet fighter, carrying both pilot and radar observer, and a comprehensive range of radar search and navigational equipment, now includes the night-fighter classification in its scope. For 7 years, the night-fighter squadrons of the Royal Air Force have been equipped with *Mosquitos*. Re-equipment with jet aircraft, long overdue, now is taking place. Squadrons are receiving two types of jet night fighters, the *Meteor NF 11*, and the *Vampire NF 10*. The introduction of these two types has increased night-fighter speeds by approximately 150 miles an hour, and lessened the opportunities of enemy bombers accordingly.

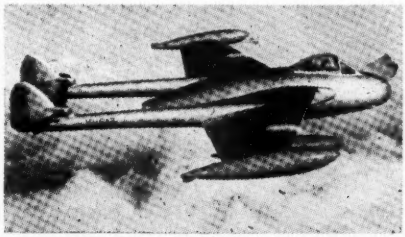
Another promising "all-weather" jet fighter, in which the Royal Air Force has shown an interest, is the *Canadian CF-100*. Equipped with two Rolls-Royce *Avon* turbojets, the *CF-100* is one of the most powerful fighters in the world.

Photo Reconnaissance

The importance of this work in modern warfare cannot be overestimated, and that this is duly recognized is shown by the great strides which have been made recently in the Royal Air Force. Photographic squadrons, which until recently have been equipped with *Spitfires* and *Mosquitos*, now have taken delivery of the *Meteor PR 10*, a photographic version of the *Meteor 8*. For long-range work, the *Canberra PR 3* now has been announced.

Light Bombers

Although for certain types of operations, particularly close support and



The *Venom* jet fighter bomber which is to replace the *Vampire* in RAF squadrons.

attack against tank formations, the work of the light bomber now has been taken over by rocket-firing jet fighters, such as the *Vampire* and *Venom*, there still is an important place for the tactical bomber with a precision bombsight. Such an aircraft also can undertake pathfinder and

marker duties for a heavier bomber force.

These duties are to be undertaken by the *Canberra B2*, the first jet bomber of the Royal Air Force, which is scheduled for delivery to squadrons this year. The

The *Meteor NF 11*, which has increased the speed of night interception by 150 mph.

outstanding performance of this aircraft makes it an invaluable contribution to the striking power of the Bomber Command, and current arrangements for its large-scale production by the Handley-Page, Avro, and Short factories, as well as by the parent concern, indicate that it is accorded an important place in Western defense strategy. In addition, it has been chosen for production in the United States, under the United States Air Force designation *B-57*, as a replacement for the *B-45 Tornado*.

Medium Bombers

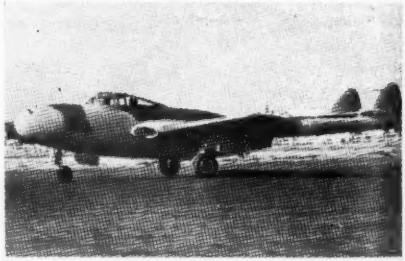
With the addition of the *Washington*, which is the Royal Air Force version of the American *B-29 Superfortress*, an important strengthening of the Bomber Command striking power has been achieved in this category. Although it can be regarded only as an interim replacement type until the long-range jet bombers are available, the *Washington* represents a notable advance on the *Lincoln*, hitherto the only type in the squadrons. A target for critics for a long time, the *Lincoln* lacked the speed, range, and crew comforts provided by the *Washington*, although the more complicated mechanisms and larger crew of the *Washington* call for a more elaborate conversion training.

Heavy Bombers

If we consider the American *B-36* to be a representative of this category, there is no bomber of this size and carrying capacity in service with the Royal Air Force today.

Maritime Reconnaissance

The Coastal Command, so long neglected, has, at last, been re-equipped with the *Shackleton* which is replacing the *Lancaster ASR* 3 in the land based squadrons of the command. No replacement is available for the trusty *Sunderland* flying boat. The flying boat seems to have



The *Vampire NF 10*, which is going into service as a replacement for the *Mosquito*.

suffered an eclipse in military as in civilian aviation, so far as this country is concerned. The *Shackleton*, from the same family as the *Lincoln*, makes more concessions to crew comfort which is so essential on long overseas patrols, and it should have a better performance with four *Griffon* engines in place of the *Merlins*. It is well equipped with radar.

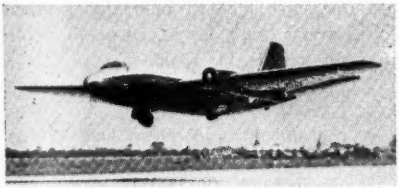
It was announced in the Air Estimates that the Coastal Command also is to receive deliveries of the Lockheed *Neptune*, a twin-engine maritime reconnaissance plane produced in the United States. This plane is remarkable for its long range, and one of them, the "Truculent Turtle," is the present holder of the world's long-distance record of 11,228 miles. The *Neptune* as yet has not been

delivered to the Royal Air Force, but it should be in service by 1952.

Meteorological Reconnaissance

This branch of the Coastal Command's work has, until recently, been performed by *Halifaxes*. Now, the new meteorological reconnaissance version of the *Hastings* has replaced the *Halifaxes*. The *Hastings* is, in every way, better suited for the task of long-range ocean patrol, and, being a converted transport, its long fuselage can accommodate a wide range of meteorological and radio equipment, as well as providing more comfort for the crew.

A special version of the *Brigand* light bomber has gone into service with overseas meteorological reconnaissance units. The *Brigand 3* is, at present, giving good



The English Electric *Canberra B2*—the first jet bomber of the Royal Air Force.

service on weather flights over the Indian Ocean from a base in Ceylon.

Transports

For some years, the Transport Command, so important in the war period, has been the "Cinderella" of the Royal Air Force. It was admitted, in the Air Estimates speech, that its strength had been allowed to dwindle to a greater extent than that of any other command, and it was the first to suffer during the economy cuts of 1949, despite its important work in the Berlin Airlift. This tendency, however, now has been stopped, and it is to be restored to its former importance.

Of the types in service with the Transport Command, the *Hastings*, first introduced during the Berlin Airlift, now is firmly established as the standard long-range transport, and has replaced the *York*. Likewise, the *Valetta*, the military version of the *Viking*, has superseded the *Dakota*, both at home and overseas, though a few *Dakotas* remain in the Far East.

One interesting development in the transport field is the announcement that the three *Princess* flying boats now under construction, originally intended for operation by civil airlines across the South Atlantic, are to be handed over on completion to the Royal Air Force Transport Command. With their long range and huge capacity, these boats certainly could be an asset on the trunk routes of the Transport Command, and their performance on such duties will be awaited with keen interest by students of the great flying boat *versus* landplane controversy the world over.

Trainers

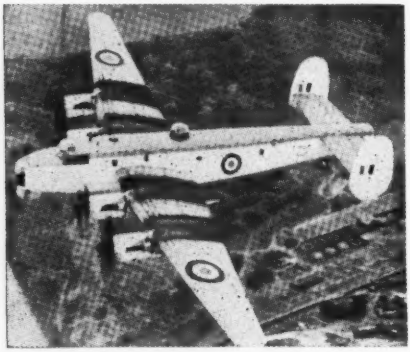
During any program of expansion and re-equipment, it is essential that flight training techniques keep pace with the new design philosophies and combat re-

The *Washington*, the Royal Air Force version of the American *B-29 Superfortress*.

quirements in the operational field. The special problem of the jet aircraft was solved quickly by the Royal Air Force in the shape of the *Meteor T 7*, a dual-control jet trainer which now has been in service for several years. It probably will be

followed by the trainer version of the *Vampire*, which offers the special advantages of side-by-side seating for instructor and pupil, now standardized on basic and advanced trainers. The *Vampire* trainer currently is undergoing evaluation tests by the Royal Air Force.

Having served as the standard basic trainer for 4 years, the *Prentice* now is due for replacement, and it will be followed, in 1953, by the new Percival *P 56*, as yet unnamed. The higher power of the *P 56*, compared with the *Prentice*, enables it to take still further the modern trend in Royal Air Force flying training, whereby as many hours as possible are flown on the basic type in proportion to the total training syllabus. In the days of the *Tiger-Moth*, the ratio between basic and advanced training was 60 hours, followed by 140 hours on the *Harvard*. The *Prentice* changed this to 100 hours at each stage, thus leading to an economy in the use of advanced trainers without a loss of efficiency in the training procedure. It may be expected that the *P 56* will improve this ratio still more.



The *Shackleton*, which is replacing the *Lancaster ASR 3* in the Coastal Command.

There has long been a need for a new advanced trainer in the Royal Air Force to replace the *Harvard*, which has been the standard aircraft in this category for 12 years. The relatively low power and performance of the *Harvard* no longer bridge the gap between the basic stage and the final conversion to operational types of aircraft. This is to be remedied soon by the introduction of the *Balliol T 2* in the flight training schools. Highly aerobatic, and equipped with a *Merlin* engine of more than double the power of the *Harvard's Wasp*, the *Balliol* approaches in performance the wartime *Hurricane* fighter.

In the crew training field, where pilots of heavy aircraft, navigators, and radio operators team up together for the first time, the veteran *Wellington* soon is to be replaced by the *Varsity*. An important feature of the *Varsity* is its tricycle landing gear, which brings bomber training into line with modern operational types. The *Varsity* may be expected to be in full-scale service by 1952.

What of the Future?

By the end of the present decade, perhaps earlier, the majority of the new aircraft at present or shortly going into service with the expanded Royal Air Force will be obsolescent. Can any predictions be made as to their successors? One thing, at least, is sure; the jet fighter manned by a pilot will have given way to the rocket missile guided by radar and fitted with proximity fuzes. The duty of the fighter is likely to shift to long-range escort of bomber formations, perhaps in the form of the "battleplane" envisaged in the theories of the American military aviation strategist, Major Alexander P. de Seversky. Major Seversky foresees the need for a large, heavy "battleplane" not unlike the bombers which it will accompany, the object of which is to carry electronic devices to counteract defensive radar, to ward off guided missiles by firing off their proximity fuzes prematurely, and to help in sighting targets. It seems

likely that electronic counterdevices can provide a useful defense against the guided missile, thus giving the bomber another lease on life.

Whether the Royal Air Force will develop along these lines, only the future can tell. However, whatever the outcome in the struggle for air supremacy, it will never lack the backing of British scientific genius.

The Protection of Civilians in Wartime

Digested by the MILITARY REVIEW from an article by Brigadier B. M. Rao in "The Journal of the United Service Institution of India" July-October 1950.

IN THE early days of history, the distinction between military personnel and civilians was clear and sharply cut. Only men who were able-bodied took part in actual combat, while women and children, the aged and the infirm, stayed at home. It was, therefore, not necessary to draw up a code of international law, specially for their protection. It was in the second half of the nineteenth century that a code of humane treatment during war was drawn up in order to minimize the horrors of war and to ensure that the wounded and the sick enjoyed a certain amount of protection. The first such code to be drawn up was signed in Geneva in 1863. This was the Geneva Convention for the relief of the wounded and sick of armies in the field. It consisted, mainly, of articles designed to give adequate protection to the wounded and sick of the armies, and to the personnel, both military and civilian, who volunteered to look after them and care for them in the field of battle. This Geneva Convention was due to the efforts of a few public-spirited men of Switzerland, particularly Mr. Henri Dunant. It was his dream to provide safeguards for the protection of the sick and wounded on the battlefield. Four years earlier, he had visited Solferino, Italy, during the course of his travels. In this village, a violent battle had raged a few days prior to his arrival. He saw on the battlefield thousands of wounded and the sick of both sides crying for help. With the aid of the local people, he organized rescue squads and administered relief to them, without distinction of nationality.

When he returned to Geneva, this nightmare which he had experienced prompted him to write a book called *A Memory of Solferino*. This book had a wide appeal in all parts of the world. It also was taken up by certain citizens in Geneva, who persuaded the Swiss Government to call an international conference and formulate a convention. The basic principle of this convention was that the sick and wounded on the battlefield would be cared for without regard to nationality. This convention was applied successfully during the wars that followed. After each war, it was modified considerably so as to meet changing conditions of warfare. It also was adapted to meet the conditions of warfare at sea. This has been the basis of all the other humantarian conventions since that time. The idea of conferring protection on the wounded and sick naturally led to the extension of such protection to people, who, though not sick or wounded, were incapable of taking further part in the hostilities, as for example, prisoners of war. In previous wars, soldiers who were captured by the enemy were either put to the sword or made slaves.

Protection for Prisoners of War

With the advance of thought in the

nineteenth century and the early years of this century, it was considered that prisoners of war also should be treated as human beings, and were to be given protection against ill-treatment of any kind. With this end in view, a separate convention was signed, in Geneva, in 1929, relative to the treatment of prisoners of war. This convention dealt with the rights and privileges that were to be enjoyed by prisoners of war from the moment they were captured up to the moment they were repatriated at the close of hostilities. The main privileges that were given to them were:

1. Adequate food and housing.
2. Facilities for communication with their next of kin.
3. Protection from ill-treatment or attack by the local population.
4. Facilities for receiving help in the form of food and clothing and other welfare parcels from their own country, or from humantarian organizations.
5. Guarantee of their rights as citizens with regard to arrest, imprisonment, trial, and punishment.
6. Facilities to representatives of international organizations to visit their camps, periodically, so that the prisoners could put forward their grievances for redress.

Protection of Civilians

As a result of the experience of the last war, it was natural that people should turn their attention to similar protection being afforded to civilians, because the distinction between the civilians and the military was narrowing. This problem of the protection of civilians is not new. It was present in World War I, and vast migrations of people took place during that war and after. It was sympathy for such helpless people that prompted the sponsors of the Geneva Convention—the International Committee of the Red Cross—to formulate the convention for the protection of civilians in wartime on the same lines as that for prisoners of war. As a matter of fact, such a convention was drawn up and submitted to the International Red Cross conference held at Tokyo in 1934, in a document known as the Tokyo Draft, which aimed at giving a certain amount of protection to civilians in wartime. It was to have been submitted for signature to the various governments at a conference in 1940, but the outbreak of World War II in 1939, prevented this draft being put on the Statute Book of International Law.

One of the major tragedies of this war was that millions of people, who took no part in the actual fighting, had to suffer untold agony; the people who had to flee from their homes to get away from war or from their oppressors. Their sufferings made the world realize that a convention of this type was absolutely necessary. As soon as the war ended, the International Committee of the Red Cross put up a modified version of the Tokyo Draft for the consideration of the various governments. With their approval, this draft was submitted to a diplomatic conference held at Geneva from April to August 1949. It was debated upon at great length and modified considerably. However, a text approved by all governments finally was drawn up. This text, now known as the "Geneva Convention for the Protection of Civilians in Wartime," was signed in December 1949. It will not be long now before this convention appears as international law.

Provisions of the Convention

The various provisions of this convention are described in the paragraphs that follow. Certain classes are designated as protected persons; these may be listed in three groups:

1. Aliens who, on the outbreak of hostilities, find themselves in the hands of the enemy. For example, alien residents in Germany or Japan on the outbreak of the last war.

2. Inhabitants of a country which is occupied by the enemy. For example, the people of Belgium, Holland, and other countries in Europe when their countries were conquered by Hitler, and, similarly, the people of the Dutch East Indies and Siam, under the Japanese.

3. Civilian war internees. For example, persons of the two categories above, whom it is necessary to confine or keep in custody in the interest of security of the state.

The convention can be divided broadly into:

1. General provisions affecting all protected persons.

2. Provisions relating to enemy aliens.

3. Provisions relating to inhabitants of occupied territories.

4. Provisions relating to civilian war internees.

Definition of Terms

Before proceeding further, it is necessary to define certain terms, which crop up frequently in the convention. Included are:

Occupying power.—This is the state into whose power the people we are considering have fallen.

Protecting power.—This is usually a neutral power which offers to protect the interests of persons governed by this convention.

Protected persons.—Protected persons, as already stated, are enemy aliens, inhabitants of occupied territories, and civilian war internees who are governed by this convention.

Home power.—Home power is the country to which the protected persons owe their allegiance. For example, suppose war breaks out tomorrow—say between the Soviet Union and the United States. On the outbreak of such a war, American citizens found on Russian soil are protected persons, America is the home power, Russia is the occupying power; and, if a neutral country like Switzerland is asked to look after the interests of American citizens in Russia, then Switzerland becomes the protecting power.

The general provisions of the convention, as applied to all protected persons, include its application, violations, time of commencement and termination, denunciation, and execution. Powers who sign the convention are required to observe its provisions, should any war occur in the future, and to apply it to protected persons under their care.

War and Occupation

The convention will apply to all cases of declared war or any armed conflict between two or more powers signatory to it. It also will apply in all cases of partial or total occupation, even if such occupation meets with no armed resistance. The convention also is applicable in cases of civil war. It will come into operation from the beginning of any conflict or occupation, and will only cease 1 year after the general cessation of hostilities. Every signatory power can denounce the convention. Such denunciation, however, will become effective only 1 year after the notice has been served, but if such denunciation is given during hostilities, it will be effective only 1 year after the close of such hostilities.

Safety and Hospital Zones

Under the convention, the belligerent can demarcate safety and hospital zones, which are immune from attack. An annex to the convention lays down the conditions to be observed by such zones before they can claim immunity during war. All hospitals which fly the Red Cross emblem prominently are protected. Doctors, nurses, ambulance drivers, hospital orderlies, and the patients in a hospital are to be protected from attack.

All protected persons are entitled to receive relief parcels of food, clothing, books, articles of worship, and amenities sent to them from their compatriots or

relief societies. Special protection is given to children under 12; they are required to be cared for and brought up in the religion of their parents. Protected persons are entitled to send and to receive news of their welfare and of their families.

The occupying power is prohibited from exercising any physical or moral coercion on the protected persons for any purpose whatever. The taking of hostages is also strictly prohibited. The occupying power is prohibited from carrying out mass exterminations, as was done by the Germans in their concentration camps during the last war. Protected persons have their legal rights guaranteed. No conviction will be promulgated except by a competent court of trial. In every case, the protecting power will be fully informed. The accused will have the assistance of a qualified lawyer. If convicted, he will have the right of appeal. Those condemned to death have the right of petition for pardon or reprieve. If a death sentence has been pronounced on any protected person, it will not be carried out for at least 6 months, so that the protecting power has sufficient time to inform the home power. In all trails, the court is required to take into account that the protected persons do not owe any allegiance to the occupying power.

On the outbreak of hostilities, every belligerent is required, under the convention, to set up an information bureau to collect all particulars regarding protected persons under its care, and forward such information to the Central Agency, established by the International Committee of the Red Cross, at Geneva. This agency, in turn, will pass on such information to the home power and to the next of kin of the people concerned.

Under the convention, enemy aliens, that is to say, subjects or citizens of a country at war with the occupying power, are permitted to leave such territory on the outbreak of hostilities, except those whose detention is considered essential for the security of the state. The aged, the sick, and children, and other persons who are useless to the war effort, are thus encouraged to return to their own country. Provision is made that they shall be given all facilities for the journey. Where enemy aliens have been deprived of gainful employment, the occupying power is required to provide them with sufficient money to support themselves.

When a country has been occupied by a foreign power, mass deportations of its inhabitants are prohibited. The inhabitants also cannot be compelled to serve in the armed forces of the occupying power. In addition, they cannot be employed on work which will further the war effort of the occupying power.

The occupying power cannot alter the status of public officials or judges; that is to say, the law of the country will continue to be in force, except in such extreme cases essential to the security of the occupying power and to prevent sabotage. The occupying power also is required to provide all facilities for consignments of relief parcels received from the home power, and distribute such consignments among protected persons. The occupying power is prohibited from diverting medical supplies, food, and clothing meant for the inhabitants, and converting them for its own use.

The occupying power cannot try persons for opinions expressed or acts committed prior to occupation. Where it is essential to assign places of residence to protected persons for reasons of security, the occupying power must see that the internees are provided with adequate food, clothing, medical attention, and shelter. Rules are laid down regarding the accommodations to be provided, and other amenities necessary for the maintenance of the decencies of life.

Where internees have to be separated

from their dependents, the occupying power is required to provide such dependents with adequate means of livelihood. Where more than one member of the family is interned, the occupying power is required to lodge them together, and is prohibited particularly from separating children from their mothers. Internment camps must be sited so as not to be exposed to the dangers of war. All protected persons are permitted to carry on the exercise of their religion, and are to be given all facilities for doing so. All internees are required to be paid regular allowances to provide themselves with goods of daily use, such as toilet articles and tobacco. Every internment camp is required to have a committee composed of representatives of the internees. This committee will elect its own leader, who will act as spokesman for the entire camp. The convention also provides that every internment camp shall be visited by representatives of the protecting power or delegates of the International Committee of the Red Cross periodically, when the inmates of the camps are permitted to relate their grievances for redress.

Internees dying in captivity are to be given decent burial according to their religious rites. Cremations are permitted should their religion demand it. Mass burials are prohibited. When any death occurs in an internment camp, not due to natural causes, the occupying power is required to order an investigation immediately and send its proceedings to the protecting power. Certain breaches of the convention are defined as grave. Such breaches include willful killing, mass exterminations, biological experiments, unlawful deportations, compulsion to join the forces, the taking of hostages, and the extensive destruction of property.

In all these cases, the occupying power is required to take immediate action to bring those persons responsible to trial and, for this purpose, is required to enact special laws dealing with such cases.

Summary

These, briefly, are the rights enjoyed by civilians in the hands of the enemy. They are designed to provide them with the minimum decencies of life. Every country which calls itself civilized is required to abide by the provisions of the convention. It is a sad reflection on the present state of affairs in the world that many do not.

The Present Yugoslav Army

The Major Preoccupation of Western Europe

Translated and digested by the MILITARY REVIEW from an article by General J. Breuillac in "Revue Militaire Suisse" (Switzerland) July 1951.

AS SOON as Serbia had acquired her independence, after more than 400 years of Ottoman occupation, the first concern for the new state was the organization of its army. Because of the country's location—at the crossroads of Central and Southern Europe and at the frontiers of the European and Asiatic continents—the Serbian people concentrated all their efforts on their national defense.

It was a matter of safeguarding an independence which was in danger of becoming a pawn of interests, which, if not hostile to one another, were at least divergent.

Therefore, a large part of the country's budget was allocated to training and equipping its armed forces.

A Peoples Army

The Serbian population was, for the greater part, composed of small land-

owners (about 80 percent), firmly attached to the soil and ready to defend it. This explains the high percentage of peasants and mountaineers among her soldiers, as well as among her junior officers and generals.

Because of this, the Serbian Army has, throughout its history, been intimately linked to the mass of the population. This particular characteristic always has played an important role in the Army.

It was during the course of the Balkan War (1912-13), and later in World War I (1914-18), that the Serbian Army acquired its greatest prestige in the eyes of the European people. When France, in accord with her allies, decided to form a new front in Southeastern Europe—the Salonika front—in order to ease the Austro-German pressure, the Serbian Army went into action and gave proof of the highest military qualities. Its officers and men displayed a rare spirit of sacrifice and bravery in the fighting in this theater of operations.

However, to be able to form a reasonable opinion of the value of this army and the possible sense of its eventual intervention in a conflict with the Soviet Union, it is necessary to go back to the beginning of the century and examine the influences which have affected its formation and the events which gave rise to its evolution, with reference to the internal political crises of the country and the recent world tension.

Foreign Influence

With the ascension to the throne of King Peter I of Serbia, in 1903, the influence of the French military schools made itself felt in the Serbian Army, and increased from year to year.

Peter I, a former student at Saint-Cyr and a volunteer in the French Army during the Franco-Prussian War (1870-71), always had a great desire to train his army in accordance with French methods.

The formation of the Salonika front contributed toward the rapprochement of the two armies, and the two peoples, which were fighting for the same cause.

With the foundation of the Kingdom of Yugoslavia, in 1918, by the union of Serbia, Montenegro, Bosnia-Herzogovina, Croatia, and Slovenia, the fraternity of the two armies was extended to the entire kingdom.

King Alexander I, who succeeded his father in 1921, reinforced still more this traditional feeling (he sent a considerable number of Yugoslav officers to specialized military schools in France, as well as using French weapons and equipment in the Yugoslav Army).

The French influence finally found its confirmation in the signing of the Franco-Yugoslav Treaty of Military Alliance and the formation of the "Petite-Entente"—Czechoslovakia, Rumania, and Yugoslavia.

It can be said that these results were the direct consequence of the high qualities of the Yugoslav Army and its officer personnel.

In 1938, on the eve of World War II, and, particularly, after Munich, the Western European powers based great hopes on this army. If they were not realized, the principal reason for it was the internal discord which destroyed Yugoslav unity to the advantage of the governments of Rome and Berlin.

When, in 1941, Yugoslavia openly declared itself on the side of the allies, in spite of the repeated threats of Germany and Italy, France already had undergone a year of German occupation.

Only Great Britain resisted in Europe. The United States had not yet entered the war, and the Soviet Union still respected the treaty of alliance signed by Ribbentrop and Molotov. Under these conditions, the Yugoslav Army, isolated as it was, could not, in spite of its courage, have resisted the attacks of the German *Wehrmacht* and its satellites: Italy, Hungary, Rumania, and Albania.

One of the great dates of Yugoslav history is 27 March 1941; the date when a bloodless *coup d'etat* overthrew the pro-Axis Cvetkovitch government. On 6 April, German troops attacked Yugoslavia, and, by 17 April, the entire kingdom was under the Nazi heel. The recently formed government had fled the country, with its young king and a part of the air forces, to take refuge in the Middle East.

A few days previously, the chief of the Ustachis, Ante Pavelic, had declared the independence of Croatia, but, in the Serbian territory, a staff colonel, Draza Mihajlovic, already was organizing the resistance movement.

Guerrilla Warfare

The movement spread rapidly throughout Serbia, Montenegro, Bosnia, Dalmatia, and Croatia, and assumed all the characteristics of modern guerrilla warfare.

Draza Mihajlovic, an instructor in the staff school, had been the only one to maintain that the Yugoslav Army could not resist the German military power, and he had taught the manner in which small, regular units should be trained for partisan warfare.

A plan for the organization of the Yugoslav Army for this new type of warfare even had been submitted by him to the Ministry of War. However, this plan, which had been very badly received, was rejected immediately.

While Draza Mihajlovic organized the resistance movement against the enemy, Ante Pavelic, with his Ustachis, undertook the extermination of the Serbs who were still inside the frontiers of the new independent state of Croatia.

It was a period of misery, terror, and moral prostration. According to the official records of the present Yugoslav Government, at least 750,000 Serbs were victims of the merciless blows of the Ustachis.

While the executions of the Serbians were in progress, Germany attacked the Soviet Union, who thus passed over to the camp of the Western allies.

It was at this moment that the first Communist resistants appeared in Yugoslavia; first, in the eastern part of Montenegro; later, in Chumadija, the most important of the Serbian provinces. In the beginning, this Communist resistance remained camouflaged. At times, it continued the national aims of Yugoslavia; on other occasions, it propagated socialistic theories for the equal partitioning of the land. Any friction with the peasant classes, which at all times had been hostile to communism, had to be avoided.

However, in spite of all this, the peasants' hostility forced the Communist resistants to leave Serbian territory toward the end of 1941, and move to Croatia. Here, the persecuted Serbian population sought refuge in the ranks of the Communists who fought under the Yugoslav banners.

Simultaneously, with the first skirmishes between the troops of Draza Mihajlovic and the Communist resistants, both the press and the communiques began mentioning the name of Tito, who had hitherto been unknown.

Arsa Juanovich

In 1941 and 1942, the Communist partisans, who were entirely untrained, took almost no part in the national resistance movement. At their head were Mosa Pijade, Peko Dapchevich, Sreten Zujovich, Milovan Djilas, Josip Broz Tito, and other partisans of the Marxist doctrine. However, the real organizer of Tito's units was Arsa Juanovich, monarchist, former frequenter of the Royal Court, and one of the best officers of the erstwhile Yugoslav staff. Scion of a poor family of Montenegro, but ambitious and industrious, he studied at the Ecole Militaire of Belgrade, and, later, at the Ecole Superieure de Guerre, where he distin-

guished himself. While there, he was the pupil of Draza Mihajlovic who taught him his guerrilla methods.

When, at the beginning of 1942, Arsa Juanovich met Tito, he was preparing to leave Serbia and go to the western part of Bosnia, where his units were being pressed by those of Draza Mihajlovic. From that moment on, and up to the conclusion of the hostilities, the two men never parted.

Almost immediately, Juanovich was appointed as chief of staff. Although he was not a Communist himself, he was influenced by his wife who, unfortunately, was a member of the Party, and was well known in the country for her sanguinary acts.

It was with Arsa Juanovich that the military communistic movement was to attain its full development in Yugoslavia, under the orders of Josip Broz Tito, at that time appointed marshal, with the assent of Moscow.

Toward the end of 1943, Tito turned again to Serbia. Arsa Juanovich found himself, with his men, face to face with the troops of Draza Mihajlovic at Kolinovik in eastern Bosnia. From the very beginning of the battle, Draza realized that he no longer was dealing with badly organized or poorly trained bands. He perceived that the hostile units had been trained by his former pupil Juanovich. He lost this battle, known under the name of the "Fourth Communist Offensive." It should be stated, for his exoneration, that the Communists had a vastly superior force; 40,000 men compared with Draza's 16,000 men.

With the hostilities terminated, the communistic regime was installed in Yugoslavia, with the assent of the Western allies and with the military aid of the Soviet Army. Arsa Juanovich retained his title of Chief of the General Staff until the end of 1946. He, nevertheless, remained in the shadow. It is a known fact that he made several trips to the Soviet Union and that he obtained the rank of general of the army. Suddenly, in 1946, he was replaced as Chief of the General Staff by Kocha Popovich.

During the night of 11-12 August 1948, after the unexpected split between the Cominform and the Belgrade Politburo, Arsa Juanovich attempted to escape and cross the frontier in the direction of Rumania, but he was surprised by the frontier guards and shot.

Kocha Popovich

Kocha Popovich's mediocre qualities do not explain his tenure of the important post of Chief of the General Staff. Scion of a rich industrial family of Belgrade, he conducted his studies in Switzerland with the Dominicans, and speaks French fluently.

Kocha Popovich was a member of the Communist Party before the last war, but, because of his background, he always was regarded as a "middle-class Communist."

The Yugoslav Army

In the present world crisis, as in the period just after Munich, great importance is given to the power of the Yugoslav Army.

It is certain that the present Yugoslav Government makes the Army one of its chief concerns, but, because of the scarcity of information regarding it, it is difficult to determine precisely its combat value in the event of another war.

About the only information that is definitely known about the Army is that (1) it has great numerical strength, possibly 1½ million troops on mobilization; (2) the troops are robust, courageous, and disciplined; and (3) the officers and noncommissioned officers are energetic, the majority of them having been

Guerrilla warfare has no secrets for the Yugoslav Army, because the majority of its personnel were trained during a merciless partisan war. Above, partisan soldiers resting atop a mountain in Yugoslavia, during a wartime operation. Below, a group of Yugoslav soldiers—men and women—in Trieste in 1945.—Department of Defense photos.

trained during the course of a merciless partisan war.

Combat Training

This partisan war was carried on in very rough terrain and in extreme climatic conditions. The region, which is poor even in normal times, had been systematically devastated by all the forces that had fought there. On some of the axial routes, for example, it was possible to travel 60 or 70 miles without finding a building with its roof still intact.

The medical service, out of supplies and equipment, could only deplore its helplessness. Many wounded men could not be cared for or restored to duty. The number of amputees was frightful.

It is easily understood how the men and women (there were many women fighting in the ranks of the partisans, with the same status as the men) after going through the military training are marked by it and solidly tempered for the rest of their lives.

The great commanders all distinguished themselves during these years of trial. A few of them, really a very small number, came from the former Royal Army, from which they transferred a few traditions to the new army. The others, the great majority, received their first military training in the international brigades in Spain.

Partisan warfare has no secrets for them.

War Matériel Varied

Their matériel is extremely varied. It came, for the most part, from repaired weapons and equipment, and the spoils of war (German and Italian stocks taken during hostilities, and American, British, and Soviet equipment obtained by Tito). The latter, however, are in small quantity, especially as regards aircraft, armored vehicles, and artillery weapons.

The heavy industry and establishments capable of manufacturing arms and ammunition are still insufficient to supply the needs of a war. Nevertheless, the armament is being modernized and the infantry is being reorganized. Little by little, the artillery is being motorized. The Army now possesses about 100 heavy tanks, built by national industry, after the pattern of Soviet tanks.

On the other hand, the number of planes is insignificant. The fairly ambitious 5-year plan, which had been adopted with a view to the establishment of a war industry, has not been very successful, because of the difficulties arising between Yugoslavia and the Soviet Union.

Finally, the general equipment of the country is very rudimentary, in spite of the efforts made since its liberation. Nevertheless, despite the grave economic situation into which the country has been plunged, the soldiers of Tito's Army are suitably equipped, well clothed, and their food is sufficient.

Political Influence

Although the majority of the Yugoslav Army is composed of men belonging to the peasant class, hence, in the main, hostile to communism, the officers are obliged to be members of the Communist Party.

The officers must attend military schools, but it appears that the results have not been outstanding.

Moreover, the Yugoslav Army, like the armies of the satellite countries of the USSR, has been given a thorough political education. It has been indoctrinated with Marxist ideology, with the view of using it, above all, for the defense of the Government rather than for the defense of the country. It is subjected, the same as in the Soviet Union, to severe surveillance by "political commissars."

Likewise, still following the example of the USSR, special courses in military education precede the obligatory military

service, both in the cities and the small villages.

Summarizing, it may be said that the Yugoslav Army:

1. Is the strongest army in the Balkans, both in numbers of combatants and in the ability of its officers and enlisted personnel.

2. Is well suited for partisan warfare.

3. Could not hold up under the weight of a major conflict, except within the framework of a coalition capable of furnishing it the arms and equipment which it lacks. This must be done continuously, even before it enters into the campaign.

With the exception of its special aptitude for partisan warfare, this verdict resembles that made, in 1939, of the old Yugoslav Army. Nevertheless, in 1941, one was surprised to see this army defeated in a week's time, not only because of a lack of matériel, but, perhaps, because of the absence of cohesion resulting from the Serb-Croatian differences.

This distressing story has no place here. However, one has the right to wonder if the present Yugoslav Army does not suffer also from a lack of cohesion comparable with that which was fatal to the Royal Army, in 1941, and whether, on this account, it might not, in the event of another war, fall victim to a similar fate.

To be completely objective, we must call attention to still another weakness. Yugoslavia belongs to the Mediterranean basin by virtue of its Adriatic coast. This coast line is difficult to defend because of its length. The Yugoslav Navy is composed only of Italian vessels turned over as war reparations. In addition, the USSR, which has had naval bases in Albania for several years, maintains a permanent submarine force there. Thus far, Yugoslavia has devoted its efforts to build up the size of its merchant marine. The presence of Soviet naval units up and down the Adriatic coast, therefore, would constitute a grave danger in case of a conflict.

However, this danger is not the only one. In the present situation, three causes of discord reduce the value of the Yugoslav Army. These are:

1. The differences between the Croats, Serbians, Macedonians, and Montenegrins.

2. The differences between the present directors of the country and their political opponents.

3. The differences between the partisans of Marshal Tito and those of the Cominform.

The Yugoslav Mosaic

The Serbs continue to be embittered, for, up until 1941, they occupied first place in the country. They regarded Macedonia as being Yugoslav, calling it, at that time, "Old Serbia." Their fathers had conquered it in 1912, and it was, moreover, the cradle of the ancient Serbian Empire of the Middle Ages.

In addition, Yugoslavia in its entirety (which many Serbs would have desired to transform into "Greater Serbia") was the fruit of the heavy sacrifices of the Serbian Army from 1914 to 1918.

Today, Yugoslavia is split up into a federation of independent states with equal rights: Serbia, Crotia, Slovenia, Bosnia, Montenegro, and Macedonia.

Serbia has, therefore, lost its place of pre-eminence in the country, and it is now Marshal Tito, a Croatian, who governs.

Hence, the traditionalistic Serbians (and, aside from the Communists, they are almost all of that kind) are displeased with this new situation which has been created. It seems to them contrary to their best interests.

Their discontent is the more bitter because the attitude of the Croatians, in 1941, may be considered, as mentioned previously, as one of the causes of the disaster.

On their part, the Croatians complain

of having been persecuted from 1918 to 1941 (burdened with taxes, kept out of all important posts, and treated as suspects because they were ex-subjects of the Hapsburgs).

Their grievances, constantly kept before them during the period between the two wars by German, Italian, and Hungarian propaganda, drove them into committing anti-Serbian acts in 1941 and during the entire existence of the independent state of Croatia.

However, this deep-seated enmity of the Croatians has been somewhat smoothed by Marshal Tito, thanks to:

1. The federative form of government which he has given to Yugoslavia.

2. The care which he took to prevent any settling of accounts between Serbians and Croatians at the time of the liberation.

Without question, the old quarrels are not yet forgotten. However, they are less talked about, for the people have other worries. In addition, the new generations, subjected as they are to official propaganda, nurse, a little less, the prewar grievances.

As for the Montenegrins and the Macedonians, they lose no opportunity for revenging themselves of the guardianship which the Serbs imposed on them.

The Montenegrins, generally speaking, are extremely pro-Russian and have rallied, in great numbers, around Tito since the beginning of his struggle for liberation and for the establishment of the Communist regime. Thus, some of them have ensured themselves of choice positions in the new army and government, which, obviously, antagonizes the Serbs.

The Macedonians show themselves openly hostile to the Serbs, who established themselves in that country after 1912. They still entertain the hope of forming, some day, with Bulgarian Macedonia and Greek Macedonia, a "Greater Macedonia," entirely independent of Yugoslavia. They count on the rivalries which divide Belgrade, Athens, and Sofiya to bring this about.

There is no need to stress the complexities of these problems. However, the firmness of Marshal Tito has prevented any of them from becoming acute.

Tito and the Cominform

To the Western world, the differences between the partisans of Tito and those of the Cominform would seem to be a doctrinal quarrel. However, as a matter of fact, this is not the case with the majority of Tito's partisans, who know little of the Marxist doctrine.

These people follow the movement because of the promises which have been made to them of better standards of living for themselves and their children. However, they are hostile to all outsiders—even though they be Russians and Communists—who come into their country and meddle with their affairs. They approve, therefore, of the firm attitude of Marshal Tito.

Naturally, these things are not viewed in the same light by the intellectuals. Their Communist training is thorough. They are strong converts of the Soviet Union; it is she who taught them the doctrine. However, with few exceptions, they have remained loyal to Tito.

The political figures who are regarded as the most important workers in the field of communism in Yugoslavia—Mosa Pijade and Edvard Kardelj—have done likewise. In the Yugoslav Government, only two ministers, General Jujovich, Minister of Finance, and Hebrang, Minister of Industry, have declared themselves for the Cominform. Their arrest provoked no reaction. In the High Command, only General Arsa Juanovich deserted. When he was killed at the Rumanian frontier, he was in the company of Colonel Darchevich, brother of one of the most dynamic generals in the new

Yugoslav Army. This general did not waver.

More astonishing, the High Police, although originally trained by Moscow and still making use of strictly Soviet methods, have employed themselves very diligently in unraveling all the intrigues of the agents of the Cominform.

In any case, the command controls remain firmly in the hands of Marshal Tito and his immediate companions, and no wavering appears to be feared, for the moment, among the subordinate officials.

Conclusion

What conclusion are we to draw from this study?

Since his accession to power, Marshal Tito has had to face numerous difficulties. He has solved, or at least surmounted, all of them with rare skill and unfailing energy. Today, he is fighting against destruction and want. Doubtless, he will succeed in triumphing over these if the Western nations will but trust him.

To be sure, the situation is still extremely unstable. One weak point, a serious incident, or a false move would be sufficient to throw everything into disorder again.

However, if this risk can be avoided, the new Yugoslav Army soon will constitute an instrument of war of undeniable worth and, provided the West is able to supply the arms and equipment that it needs, it should play a leading role in the Balkans.

However, some individuals, finding that the present regime was established in Yugoslavia without true popular consultation, question whether the interests of the government and those of the people would coincide in the event of a war, and whether, on this account, the fighting spirit of the soldiers would not waver. In short, would the Yugoslav Army oppose an invasion by Soviet or satellite troops with an effective defense or a solid front?

In our opinion the answer is yes!

After the painful experience suffered by Yugoslavia at the time of her "liberation" by the Soviet Army, it is certain that the Yugoslav Army would resist violently the Communist invaders—even though some of its officers, members of the Communist Party, revealed themselves, at that moment, as partisans of the Cominform.

The Yugoslav people are deeply attached to their soil; sentimental and faithful to their friendship with France. They retain the lively memories of the sufferings endured, in common, at the time of the trials of 1914-18, and have faith in the peoples of the West.

If the allies are capable of freeing them from their misery, of opening up vistas of more comfort and happiness, they will take their stand like a powerful barrier before the Communist tide.

Their army will be the pillar on which will be anchored the defense of the European Southeast, and the rampart which will halt the Soviet drive toward the Western Mediterranean.

'All Ships Follow Me'

The Operations of the Royal Netherlands Navy in the Pacific War

Translated and digested by the MILITARY REVIEW from an article by
Lieutenant Commander C. J. M. Kretschmer de Wilde in "La Revue Maritime" (France) August 1951.

THE Royal Netherlands Navy is able to get along without propaganda. Nevertheless, the world has the right to know how this small but valiant force contributed to victory, and to learn of its exploits in the Southwest Pacific during World War II.

This article does not aim to give a strategic and tactical description (I shall leave that to the specialists), but only a résumé of the events, supplemented by a few battle impressions which I have gathered from witnesses.

War Threatens the Far East

Hitler's aggressions had caused a growing tension in the international situation, and Japan took advantage of it to seize possession of several countries in the Far East.

It was after the occupation of the island of Hainan, on 10 February 1939, that the Netherlands Indies were threatened.

The Dutch Government had realized for a long time that its relatively weak navy was not able to measure its strength with a navy as powerful as that of Japan. Therefore, it had built up a fleet suited for the defense of the straits adjacent to its overseas territories.

Its task was to seize and hold local control of sea communications, while the 'eets of Great Britain and the United States held in check the main body of the Japanese naval forces.

However, at this critical moment, none of the powers were able to stop Japan in this part of the world.

It is true that the Japanese avalanche did not surprise the Dutch Government. The economic conversations which had taken place in 1934 had shown that the Netherlands Indies definitely interested Japan, the latter making no effort to conceal the fact. These were the preliminaries to the coming conflict, the "cold war" which was beginning.

The Dutch Government had proved its good will toward Japan many times. In fact, it may be said that it had exaggerated its policy of appeasement. However, be that as it may, what was to be expected happened. As early as 1934, a Japanese delegation had come to Batavia to negotiate maritime and commercial agreements, favoring, among other things, the importation of cotton fabrics. Then, in 1937, the Japanese were back again, demanding still more.

After the German occupation of the Netherlands, in May 1940, Japan took advantage of the situation to make new demands. These concerned oil, the exploitation of mines, and an immigration quota.

For 10 years, Japan had amused herself by playing this game of intimidation and political intrigue. The Dutch Government knew that this could not continue, and it did not have the intention of making any additional concessions.

When two Japanese missions failed, the conversations were ended.

The crisis was about to occur. The Dutch were prepared for anything, and, while the dark clouds gathered on the horizon of the Pacific, they hoisted the storm flag on the flagstaff. The die was cast.

Defense Preparations

In April 1941, a military conference was held in Singapore between the United States, Great Britain, the Netherlands,

Australia, New Zealand, and the Indies, and an interaid plan was prepared in the event that Japan should launch an attack. This plan, which considered several possibilities of Japanese aggression, provided corresponding defense measures, using the co-ordinated effort of the air, ground, and naval forces of the signatories.

The Royal Netherlands Navy in the Far East had at its disposal, at that time, 4 cruisers, 1 antiaircraft cruiser, 10 destroyers, 18 submarines (of which only 11 were operational), 20 patrol vessels, 7 minesweepers, 2 gunboats, and a few minelayers.

The air arm of the Royal Netherlands Navy included 70 flying boats (which were used for patrol purposes, but which could carry a small load of bombs), 11 twin-engine bombers, and 10 reconnaissance planes which could be launched by catapult. It possessed no torpedo or fighter planes.

In addition to the naval bases of Soerabaja, Batavia, Tjilatjap, and Ambon, more than 60 secondary bases, scattered over the entire Netherlands Indies, permitted these planes to refuel themselves and patrol a vast sea area.

Tension Increases

During the latter part of 1941, tension increased in the Far East. The Japanese diplomat, Saburo Kurusu, went by plane to Washington on the pretense of aiding Ambassador Kichisaburo Nomura in his efforts to "preserve peace," but, in reality, to cause the conversations to be prolonged. The purpose of the negotiations was none other than to serve as a screen behind which the Japanese carriers, escorted by cruisers and destroyers, were to leave their bases for an attack on Pearl Harbor.

At this time, Dutch submarines were cruising in the open sea in the Gulf of Siam, far from their territorial waters, ready to defend the British territory in this part of the world, and to fight for the common cause.

A few weeks before, the Dutch naval commander in the Netherlands Indies had ordered his ships, secretly, to leave their naval bases at Soerabaja and take up their waiting positions.

Dutch flying boats were executing regular patrol tours at the southwest entrance to the South China Sea and north of the Archipelago, while Dutch naval forces were guarding the entrance to the Indian Ocean, Sunda Strait, Karimata Strait, the straits of Sumatra and Borneo, and the Celebes Sea. In addition, a Dutch cruiser was placed under the operational command of the British Commander in Chief in China.

The presence of Japanese submarines in the South China Sea, and of transports protected by aviation in the Bay of Camranh, on 2 December 1941, indicated an imminent attack.

The Enemy Strikes

Early on Sunday morning, 7 December 1941, the roar of Japanese planes awakened Pearl Harbor, the American base of the Pacific fleet. Ten American ships were sunk. The same night, the Governor General of the Netherlands Indies broadcast an announcement that, in the name of the Dutch Government in Exile in London, war had been declared with Japan.

Within a few hours, Dutch submarines had sunk four Japanese transports and, during the days that followed, new submarine victories were announced. However, during this same period, enemy action was reducing the size of the Dutch naval forces.

From the very beginning, the Royal Netherlands Navy found itself in a precarious situation, because it was forced to operate in an area where the enemy had air superiority. Because of this, and a lack of reconnaissance aircraft, many

favorable opportunities for attacking Japanese convoys were lost.

Since the principal attack was to be expected west of Borneo, the Supreme Commander of the Netherlands East Indies forces placed a flotilla at the disposal of the British Commander in Chief at Singapore.

On 15-16 December, the Japanese landed in several places on the Malacca Peninsula and the British portion of Borneo. During this period and the latter part of December, Dutch naval forces sank three Japanese transports, two tankers, and a destroyer, but suffered the loss of four submarines from enemy action.

Allied War Conference

A conference was held at Singapore, on 18 December 1941, to discuss the war situation, which progressively was growing worse. It was decided, among other things, to send air reinforcements to Malacca and the Philippine Islands, and to concentrate as powerful a naval force as possible in the South China Sea and the western section of the Java Sea.

Thanks to the heavy losses inflicted on the enemy by the Dutch submarines and aircraft, with its halting of gasoline supplies destined for enemy use, the Strait of Malacca and the island of Borneo were free of enemy aviation during the first period of the war. As a result, allied convoys were able to reach Singapore. Planes of the Royal Netherlands Navy also were able to bomb Japanese concentrations at Davao and at Jolo. However, in spite of all efforts, it was impossible to halt the Japanese avalanche and the British oil fields in the area fell into the hands of the enemy.

On 10 January 1942, General Wavell arrived at Java to assume command of the combined forces of the United States, Great Britain, the Netherlands, and Australia.

The 'Malaya Barrier'

It was decided to attempt to hold, at any cost, the line Malacca—Sumatra—Java—Australia, designated as the "Malaya barrier." However, as the Japanese avalanche continued, and communications between Australia, Timor, Bali, and Java were cut, it became impossible to send combat planes into the distant areas.

By the middle of January 1942, only 6 of the original 11 Dutch submarines remained. The others had been lost, but not before inflicting heavy losses on the enemy.

In spite of all efforts, the Japanese landed, on 24 January, at Balikpapan, and occupied the Kendari airfield on the island of Celebes, thereby placing the Soerabaja Naval Base within range of enemy aircraft.

On 2 February, a battle squadron was formed by the navies of the United States, Great Britain, Australia, and the Netherlands, and placed under the command of a Dutch rear admiral. When it attempted to intercept a Japanese naval concentration near Celebes, 37 enemy planes attacked it, damaging two American cruisers and inflicting many losses among the personnel.

On 13 February, a large Japanese naval force, composed of 3 heavy cruisers, 4 light cruisers, an aircraft carrier, and 20 transports, was reported near the Anambas Islands. The allied squadron advanced toward the Japanese force, but enemy aircraft bombed it and, finally, forced it to retreat.

During this period, the Supreme Commander of the Netherlands East Indies Naval Forces was named Commander in Chief of Allied Naval Forces in the Pacific. However, the situation already had grown worse, and the new commander was not able to accomplish very much.

On 15 February, Singapore fell. After this disastrous event, the eyes of the entire world turned toward the Nether-

land East Indies. But what could the Dutch, its defenders, do in the face of such Japanese superiority except sacrifice themselves? The following day, Palembang surrendered.

The allied squadron made a courageous effort to attack a landing fleet east of Bali, but the battle was marked more by the heroic actions of the crews than by results accomplished.

In the meantime, the Japanese encirclement of Java was being completed.

Convinced that prolonged defense had become useless, General Wavell left, on 25 February, for Burma, where another assignment awaited him.

Although the situation appeared hopeless, the Commander in Chief, Allied Naval Forces in the Pacific, did not lose courage. On 21 February, he sent this message to all his ships:

"I inform all the officers and crews that the situation is critical. I demand that all of you do everything possible to prevent an enemy landing at Java. It is necessary to seize every opportunity for offensive action, and, to this end, all must be sacrificed."

The Squadron's Last Mission

On 26 February, the allied squadron commander held his last conference with his officers. That morning, reconnaissance planes had discovered two enemy fleets—comprising some 30 vessels—in the vicinity of Arends Island, and 20 others some 350 miles north of Batavia.

The squadron commander explained that in order to prevent the landing in Java, all risks were to be taken, and that he intended to attack the enemy.

A little before dusk, on 26 February, the squadron left Soerabaja for its last battle. At 1500 the following day, the squadron met the enemy fleet near the island of Bawean. The battle lasted more than 8 hours and was an episode of tenacity *versus* crushing superiority. It ended with the annihilation of nearly all of the allied vessels.

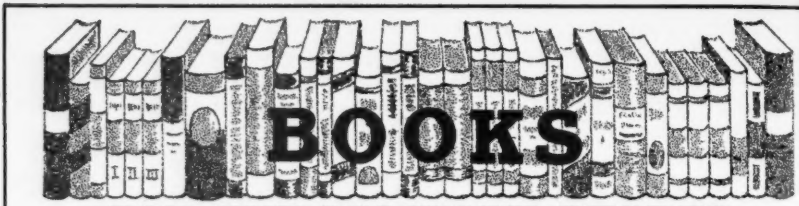
Like Nelson's famous signal at the battle of Trafalgar, the squadron commander led his force into battle with the words "All ships follow me." Like Nelson, he died leading his fleet in battle.

Defeat Makes a Victory

The defeat in the Java Sea was the basis for the victorious battle of Australia, because the gallant resistance of the Dutch gained the time required to send troops from the Middle East to Australia. With Australia thus bolstered, Japan definitely lost her chance to attack.

Rarely in history has the sacrifice of a country had so much influence on the results of a war, and, perhaps, on the destiny of the world.

Time will be our judge. When these events are regarded as history, those who gave their lives for a great cause still will be remembered.



FOR THE MILITARY READER

DEFENSE WITHOUT INFLATION: An Economic Study. By Albert G. Hart, with recommendations of The Committee on Economic Stabilization of The Twentieth Century Fund. 186 Pages. The Gallery Press, New York. $2.00.

By Lt Col Paul L. Bogen, *Armor*

The economic strategy of readiness is the subject and substance of *Defense Without Inflation.* Here is a penetrating analysis of the economics of the present situation. It is based upon the assumption that the United States must build and maintain military readiness to meet the uncertainties and tensions of the world situation. It further assumes that this "readiness," both economic and military, is somewhat less restricting than full mobilization. It is a basis for rapid mobilization, if required.

Interwoven with economic theory is an analysis of the psychology of public reaction and of government action. An explanation, if not a basis for understanding, of the fluctuations in demands for defense appropriations in relation to world events is well presented.

The "Policy for the Crisis," in the last chapter, is the report of The Twentieth Century Fund Committee on Economic Stabilization. The members of the committee are four nationally known and recognized economists. Their recommendations are concise and definite. In brief, they recommend controls, economy in government, and optimism with a national willingness for defense as a deterrent to inflation and basis for economic growth.

PEACE CAN BE WON. By Paul G. Hoffman. 93 Pages. Doubleday and Company, Inc., Garden City, New York. $1.00.

By Ivan J. Birrer, *Ph.D.*

The author, for 2 years the ECA administrator, draws a blueprint for a peace offensive to be waged simultaneously on four fronts: military, economic, political, and information. He calculates the probable cost of the offensive and its probable success. The latter he views with reserved optimism.

REPORT TO THE COMBINED CHIEFS OF STAFF BY THE SUPREME ALLIED COMMANDER SOUTHEAST ASIA 1943-1945. By Vice Admiral The Earl Mountbatten of Burma. 280 Pages. Philosophical Library, New York. $12.00.

By Col Geoffrey G. Elliott, *British Army*

This report is well and concisely written, and clearly illustrated with maps and charts. It describes, in detail, the events on "The Forgotten Front" during the period when Earl Mountbatten was Supreme Allied Commander. It should be of particular interest now to the student or research worker of military tactics and strategy in the Far Eastern Theater. It should belong in every military library.

A HISTORY OF THE MODERN WORLD. By R. R. Palmer. 900 Pages. Alfred A. Knopf, New York. $6.75.

TWENTIETH CENTURY EUROPE. By C. E. Black and E. C. Helmreich. 910 Pages. Alfred A. Knopf, New York. $7.50.

BALKAN CAESAR: Tito vs. Stalin. By Leigh White. 245 Pages. Charles Scribner's Sons, New York. $2.75.

By COL GEORGE C. REINHARDT, *CE*

The flame of hatred for the whole genus of communism, regardless of the specie, lights up acts of treachery and evil by both protagonists of the volume. It illuminates few signposts for the future while luridly lighting the wrecks of Anglo-American judgment in past dealings with both Stalin and Tito.

Mr. White's journalistic career has provided him with evidence of matters whereof he speaks. An ambulance driver in the Spanish Civil War, he now terms his arch foe, Franco, "A much lesser tyrant than Tito." He covered Yugoslavia and Greece before and during the German invasion, and returned there during the partisan warfare. In 1945, he was one of the reporters expelled from Moscow for "censorship violations."

Infuriated by the wartime and postwar bungling trust of Tito by the British and American authorities, the author overwhelms us with condemnations as violent as the deeds they condemn. One of the more startling allegations quotes an order from Stalin directing Tito's partisans, then largely subsisting on Anglo-American bounty, to join Hitler's forces (in 1943) in case of an allied landing in Dalmatia. However, the depth of treachery disclosed by that charge is the norm for Communist behavior, according to White.

The book opens with a fascinating account of "how dictators grow to power," the best biography of Tito yet published. It then plunges into the plots and counterplots of 1939-45 to confuse the reader with a plethora of complicated names, both personal and geographical. No "T/Os" are included to explain the former, nor maps for the latter. Authorities cited are not always as formidable as the weight given them.

Mr. White takes violent issue with Hamilton Fish Armstrong *(Tito and Goliath* reviewed in the August 1950 issue of the MILITARY REVIEW) on the military prowess of Yugoslavia today. Candidly, he admits his own error in 1940 as to the "strength of the mountain fastnesses," which were overrun by Marshal List in exactly 3 weeks. He now estimates "it might take a Russian marshal 3 months." White discounts any possibility of Tito fighting Russia unless Yugoslavia is invaded and then assesses the military error of such an invasion from Stalin's viewpoint. He cites Laval's attempt to use Mussolini as an ally against Hitler and asks "Is Tito of any greater value to the West in its impending conflict with Stalin?"

Despite being enjoyable reading, except for the confusion over names and places, the book continuously poses the question, "What do we *do* about this?" without furnishing an answer. Perhaps, as Mr. White apologizes, "events are moving much too rapidly to offer concrete suggestions," but not it would seem beyond the skill of a writer competent to invent such startling similes as "The erstwhile Holy Trinity—Tito the Father, Hodja [dictator of Albania] the Son, and Stalin the Holy Ghost—became a Holy Duality with Stalin the Father assisting Hodja the Son . . . to exercise the unholy ghost of Titoism."

We cannot fail to agree with Mr. White's finding that "we be just as skeptical, and as hypercritical, in dealing with our erstwhile enemy, Tito, as we have been in dealing with our Greek, Turkish and Iranian allies. If it is the course of wisdom to demand reforms in Greece, Turkey, and Iran, is it not the course of folly to tolerate the myriad abuses of communism in Yugoslavia? . . . We . . . [must] exact the utmost in spiritual concessions from every tyrant who presumes to traffic with our alms."

THIS IS WAR! A Photo-Narrative in Three Parts. By David Douglas Duncan. Harper and Bros., New York. $4.95.

By LT COL DONALD T. KELLETT, *Inf*

Here is a magnificent and unprecedented pictorial presentation of infantry (United States Marines) in battle. It is difficult to accord this volume—the text as well as pictures—all the praise it deserves; it is a rare and artistic masterpiece, in addition to being a grimly accurate chronicle of the vicious fighting in Korea. Its honest realism neglects neither the bloody glory nor the tradegy inherent to close combat.

It is the kind of presentation that has never been told adequately in pictures before. Here is the battle panorama which, up to now, has been only fleetingly visible to the individual ground soldier; thereafter to be preserved as a nightmarish mental image or reduced to the poor substitute of words.

To make this book, LIFE photographer (and World War II Marine) Duncan needed the soldier's feel of battle—that distinctive talent of being in the areas where the action was thickest and at the right time. He has maneuvered his lens into those dangerously exposed places where a squad or platoon leader must invariably go in the process of leading troops to close with and to destroy the enemy in the infantry tradition.

From its three episodes: "The Hill" (action within the Pusan perimeter), "The City" (the amphibious assault of Inchon and the capture of Seoul), and "Retreat, Hell" (the extrication of the 1st Marine Division from the frigid trap at Changjen Reservoir), the professional soldier can learn as much as from any field manual.

The book is one of the best arguments yet presented to prove that wars still are won by the foot soldier, and that his training, equipment, and leadership are vital to the security of this Nation.

THE SECRET ARMY. By T. Bor-Komorowski. 407 Pages. The Macmillan Company, New York. $4.00.

THE SOVIET SLAVE EMPIRE. By Albert Konrad Herling. 208 Pages. Wilfred Funk, New York. $3.75.

WINSTON CHURCHILL. By Ben Tucker. 315 Pages. Anglobooks, New York. $4.95.

His life in pictures, with comment.

INDEPENDENCE AND AFTER. By Jawaharlal Nehru. 403 Pages. The John Day Company, New York. $3.00.

MARTI: APOSTLE OF FREEDOM. By Jorge Manach. Translated by Coley Taylor. 361 Pages. Devin-Adair, New York. $4.50.

JAMES MADISON: Father of the Constitution, 1787-1800. By Irving Brant. 512 Pages. The Bobbs-Merrill Company, Indianapolis. $6.00.

THE SOVIET UNION: Background, Ideology, Reality. Edited by Waldemar Gusan. 216 Pages. University of Notre Dame Press, Notre Dame, Indiana. $3.50.

HISTORY OF FORT SAM HOUSTON. By Mary Olivia Handy. 111 Pages. Illustrated. The Naylor Company, San Antonio, Texas. $2.00.

MILITARY SCIENCE TODAY. By Donald Portway. 175 Pages. Oxford University Press, New York. $2.00.

WHO'S WHO IN LATIN AMERICA (Part III: Colombia, Ecuador, and Venezuela). By Ronald Hilton. 149 Pages. Stanford University Press, Stanford. $3.50.

UNITED STATES ADMINISTRATION OF ITS INTERNATIONAL ECONOMIC AFFAIRS. By Wallace Parks. 315 Pages. Johns Hopkins Press, Baltimore. $5.00.